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The Council think it proper to state that the authors of the several communications are alone responsible for the statements, reasonings, and opinions contained in their respective papers.

20, Hanover Square, W.;
August, 1892.

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1889 CARTE, WILLIAM ALEXANDER, M.D., M.Ch., Surgeon-Major, Grenadier Guards' Hospital, Rochester Row, S.W.
1869 CARTER, ROBERT BRUDENELL, 27, Queen Anne Street, W. (C. 1873–6, V.P. 1879–81.) *Trans.* 8.
1885 CATON, RICHARD, M.D., 86, Rodney Street, Liverpool. *Trans.* 2.
1868 CAVAFY, JOHN, M.D., 2, Upper Berkeley Street, W. (C. 1881–3.) *Trans.* 4.
O.M. CAYLEY, WILLIAM, M.D., 27, Wimpole Street, W. (C. 1874–5, S. 1876–8, C. 1879–80, V.P. 1885–6.) *Trans.* 7, *C.S.* 1.
1890 CHAPMAN, CHARLES WILLIAM, M.D., 23, Fitzjohn's Avenue, Hampstead, N.W.
1884 CHAPMAN, PAUL M., M.D., 1, St. John Street, Hereford.
1885 CHEYNE, W. WATSON, M.B., C.M., 59, Welbeck Street, W.
1873 CHISHOLM, EDWIN, M.D., Abergeldie, Ashfield, near Sydney, New South Wales.
1868 CHOLMELEY, WILLIAM, M.D., 63, Grosvenor Street, W. (C. 1871–3.) *Trans.* 2.
O.M. CHURCH, WILLIAM SELBY, M.D., 130, Harley Street, W. (C. 1874–6.)
1873 CHURTON, THOMAS, M.D., 35, Park Square, Leeds. (C. 1889–91.) *Trans.* 3.
O.M. CLAPTON, EDWARD, M.D., 22, St. Thomas's Street, Southwark, S.E. (C. 1872–4.) *Trans.* 1.
O.M. CLARK, Sir ANDREW, Bart., M.D., LL.D., F.R.S., 16, Cavendish Square, W. (C. 1876–8, V.P. 1880–2, P. 1883–4.) *Trans.* 2.
1874 CLARK, ANDREW, 71, Harley Street, W. *Trans.* 1.
1887 CLARK, FRANCIS WILLIAM, Ridge House, Staithes, Yorkshire.
1885 †CLARKE, J. MICHELL, M.B., 2, York Buildings, Clifton, Bristol.
1885 CLARKE, WILLIAM BRUCE, M.B., 46, Harley Street, W. *Trans.* 1, *C.S.* 1.
1877 †CLAY, ROBERT HOGARTH, M.D., 4, Windsor Villas, Plymouth.
1887 CLEMOW, ARTHUR HENRY WEISS, M.D., C.M., 1, Comeragh Road, W.
1877 *CLUTTON, HENRY HUGH, M.A., 2, Portland Place, W. (C. 1885–7.) *Trans.* 9, *C.S.* 2.
1882 COLLIER, HERBERT, M.D., The Grange, Gorleston, Great Yarmouth, Norfolk.
1882 COLQUHOUN, DANIEL, M.D., Dunedin, New Zealand.
1872 COOKE, THOMAS, 40, Brunswick Square, W.C.
1868 COOPER, FRANK W., Leytonstone, Essex.
1887 COTES, CHARLES E. H., M.B., 20, Wilton Street, S.W. *C.S.* 2.
1880 COTTLE, WYNDHAM, M.D., 3, Savile Row, W.

Elected

1892 Cotterell, Edward, 5, Halkin Street West, S.W.

O.M. Couper, John, 80, Grosvenor Street, W. (C. 1874.)

1875 Coupland, Sidney, M.D. (C.), 16, Queen Anne Street, W. (S. 1882–4, C. 1885–7.) *Trans.* 5, *C.S.* 2.

1886 Cousins, John Ward, M.D., Riversdale, Kent Road, Southsea. *Trans.* 1.

1882 Coxwell, C. F., M.B. *Trans.* 2.

1879 Cripps, William Harrison, 2, Stratford Place, W. (C. 1886–8.) *Trans.* 3.

1872 Critchett, Anderson, 21, Harley Street, W.

1877 Crocker, Henry Radcliffe, M.D., 121, Harley Street, W. (C. 1884–5.) *Trans.* 14.

O.M. Croft, John, 48, Brook Street, W. (C. 1870–2, V.P. 1882–4.) *Trans.* 12.

1890 Crowle, Thomas Henry Rickard, 3, Campden Hill Road, W.

1872 Dalby, Sir William Bartlett, M.B., 18, Savile Row, W. (C. 1879–81.) *Trans.* 4.

1882 Dallaway, J. W. Dennis, 5, Duchess Street, W.

1891 Dardenne, Henri, M.B., French Hospital, Shaftesbury Avenue, W.C.

1886 Davies, Arthur T., M.D., 23, Finsbury Square, E.C. *C.S.* 8.

1879 Davies-Colley, J. Neville C., M.B., M.C., 36, Harley Street, W. (C. 1885–6.) *Trans.* 7, *C.S.* 1.

1879 †Davy, Henry, M.D., 29, Southernhay, Exeter.

1868 Day, William Henry, M.D., 10, Manchester Square, W. (C. 1892.) *Trans.* 5.

1889 Dean, Henry Percy, 84, Wimpole Street, W.

1879 †Dennis, Frederic S., M.D., 542, Madison Avenue, New York, U.S.

1875 Dent, Clinton T., 61, Brook Street, W. (C. 1884–6.) *Trans.* 2.

O.M. Dickinson, William Howship, M.D., 9, Chesterfield Street, W. (C. 1874–5, V.P. 1888–9.) *Trans.* 2.

1891 Dickinson, William Lee, M.B., 9, Chesterfield Street, W. *Trans.* 1.

1871 Diver, Ebenezer, M.D., Kenley, Caterham Valley, Surrey. (C. 1890–2.)

O.M. Down, John Langdon H., M.D., 81, Harley Street, W. (C. 1870–2.) *Trans.* 1.

1868 Drage, Charles, M.D., Hatfield, Herts.

1879 Drewitt, F. G. Dawtrey, M.D., 2, Manchester Square, W. (C. 1886–8.) *Trans.* 2.

O.M. Duckworth, Sir Dyce, M.D., LL.D. (*President*), 11, Grafton Street, Bond Street, W. (C. 1875–7, V.P. 1887–8, P. 1891–2.) *Trans.* 17 *C.S.* 5.

O.M. Duffin, Alfred B., M.D., 18, Devonshire Street, W. (C. 1872–4, V.P. 1891–2.) *Trans.* 6.

1884 Duke, Edgar, 30, Pevensey Road, St. Leonard's-on-Sea.

1869 Duke, Olliver Thomas, M.B., Surgeon, Bengal Army, India.

1889 Duncan, John, M.D., St. Petersburg.

Elected

1889 Dunn, Louis Albert, M.S., 10, St. Thomas's Street, S.E.

O.M. Durham, Arthur Edward, 82, Brook Street, W. (C. 1867–9, V.P. 1884–5.) *Trans.* 5.

1884 Edmunds, Walter, M.C., 75, Lambeth Palace Road, S.E.

1882 Emond, Emile, M.D., 113, Boulevard Beaumarchais, Paris.

O.M. Erichsen, John E., LL.D., F.R.S., 6, Cavendish Place, W. (V.P. 1869–71.)

1868 Evans, Julian, M.B., 123, Finborough Road, Redclyffe Square, S.W.

1888 *Eve, Frederic S., 125, Harley Street, Cavendish Square, W.

1877 Ewart, William, M.D., 33, Curzon Street, W. (C. 1884–6.) *C.S.* 1.

1868 †Fairbank, Frederick Roydon, M.D., 39, Warrior Square, St. Leonards-on-Sea. *Trans.* 1.

1889 Fardon, Edward Ashby, Middlesex Hospital.

1885 Fenn, Edward Liveing, M.D., Grey Friars, Colchester.

1887 Fenwick, E. Hurry, 5, Old Burlington Street, W. *Trans.* 1, *C.S.* 1.

1872 Fenwick, J. C. J., M.D., 25, North Road, Durham.

1878 Field, George P., 34, Wimpole Street, W.

1876 Finlay, David White, M.D., Aberdeen. (C. 1885–7, S. 1891.) *Trans.* 6.

1885 Fitz-Patrick, Thomas, M.D., 30, Sussex Gardens, Hyde Park, W.

1889 Flemming, Percy, M.D., 35, Regent's Park Road, N.W. *C.S.* 1.

1878 *Fonmartin, Henry de, M.D., 1, Anchor Gate Terrace, Portsea, Hants.

1889 Forbes, Daniel Mackay, Shoreditch Infirmary, 204, Hoxton Street, N.

1890 Forman, E. Baxter, M.D., 11, Bramham Gardens, S. Kensington, S.W.

1890 Foster, Michael G., M.B., M.A., Villa San Giovanni, Alassio, Italy.

1881 Fowler, James Kingston, M.D., 35, Clarges Street, W. (C. 1887–9.) *Trans.* 4, *C.S.* 5.

1886 Fox, R. Hingston, M.D., 23, Finsbury Square, E.C.

1878 Fox, Thomas Colcott, M.B., 14, Harley Street, W. (C. 1888–90.) *Trans.* 5, *C.S.* 1.

1887 Freeman, Henry William, 24, Circus, Bath.

1890 Fuller, Henry Roxburgh, 45, Curzon Street, W.

1891 Fyffe, W. Kington, M.B., B.C., St. George's Hospital, S.W. *Trans.* 1.

1888 Gage-Brown, Charles Herbert, M.D., 74, Cadogan Place, S.W.

1868 Gant, Frederick James, 16, Connaught Square, W. (C. 1877–9.) *Trans.* 3.

1887 Garrod, Archibald Edward, M.A., M.D., 9, Chandos Street, W.

1879 Garstang, Thomas Walter Harropp, The Heath, Knutsford, Cheshire.

1885 Gibbons, Robert Alexander, M.D., 29, Cadogan Place, S.W. *Trans.* 1.

1868 Glover, James Grey, M.D., 25, Highbury Place, N. (C. 1878–80, V.P. 1892.) *Trans.* 2.

1882 Goddard, Eugene, M.D., 106, Highbury New Park, N.

Elected

1875 Godlee, Rickman John, M.S., 19, Wimpole Street, W. (C. 1882–3, 1887–9, S. 1884–6.) *Trans.* 12, *C.S.* 4.

1882 Goldie, Robert William, Medical Superintendent, Poplar and Stepney Sick Asylum, Devon's Road, Bromley.

1878 Golding-Bird, C. H., M.B., 12, Queen Anne Street, W. (C. 1887–9.) *Trans.* 10.

1875 Goodhart, James Frederic, M.D., 25, Weymouth Street, W. (C. 1880–2.) *Trans.* 12, *C.S.* 2.

1891 Goodman, Roger Neville, M.B., 3, Grove Crescent, Kingston-on-Thames.

1869 Goodridge, Henry Frederick Augustus, M.D., 10, Brock Street, Bath.

1882 Goodsall, D. H., 17, Devonshire Place, W.

1877 Gould, A. Pearce, M.S. (*Hon. Secretary*), 10, Queen Anne Street, W. (C. 1885–7, S. 1892.) *Trans.* 11, *C.S.* 2.

1875 Gowers, William Richard, M.D., F.R.S., 50, Queen Anne Street, W. (C. 1881–2.) *Trans.* 5.

1891 Grant, J. Dundas, M.D., 8, Upper Wimpole Street, W.

1868 Green, T. Henry, M.D., 74, Wimpole Street, W. (C. 1877–9.) *Trans.* 2, *C.S.* 1.

1875 †Greenfield, William Smith, M.D., 7, Heriot Row, Edinburgh. (C. 1881.) *Trans.* 3.

1883 Gross, Charles, M.D., M.S., 112, Westbourne Grove, W.

1868 †Guéneau de Mussy, Henri, M.D., 15, Rue du Cirque, Paris.

1887 Habershon, Samuel Herbert, M.D., 70, Brook Street, W.

1882 Hadden, Walter Baugh, M.D. (*Hon. Secretary*), 21, Welbeck Street, W. (C. 1886–8, S. Oct., 1891–2.) *Trans.* 8, *C.S.* 1.

1875 Hale, C. D. B., 8, Sussex Gardens, W.

1878 Hall, F. de Havilland, M.D., 47, Wimpole Street, W. (C. 1885–87.) *Trans.* 7, *C.S.* 3.

1889 Halstead, George Ezra, M.D., B.S., Ramsgate.

1888 Handfield-Jones, Montagu, M.D., 35, Cavendish Square, W.

1886 †Handford, Henry, M.D., 14, Regent Street, Nottingham. *Trans.* 4, *C.S.* 1.

1886 Hardie, James, M.D., 15, St. John Street, Manchester.

O.M. Harley, John, M.D., F.L.S., 9, Stratford Place, W. (C. 1875.) *Trans.* 1.

1890 Harper, James, M.D., 25, Rosary Gardens, South Kensington, S.W.

1872 Harris, Henry, M.D., Trengweath, Redruth, Cornwall.

1889 Harris, Herbert Elwin, M.B., St. George-in-the-East Infirmary, E. *Trans.* 1.

1881 Harrison, Charles Edward, M.B., Grenadier Guards Hospital, Rochester Row, S.W.

1892 Harrison, Damer, 53, Rodney Street, Liverpool. *Trans.* 1.

1869 Haward, J. Warrington, 16, Savile Row, W. (C. 1876–8, 1884–6, S. 1881–3, V.P. 1888.) *Trans.* 12.

Elected

1886 Hawkins, Francis Henry, M.B., 59, Wimpole Street, W. *Trans.* 1, *C.S.* 2.

1889 Hawkins, Herbert Pennell, M.B., B.S., 38, Weymouth Street, W. *Trans.* 1.

1890 Hawkins-Ambler, George Arthur, 162, Upper Parliament Street, Liverpool.

O.M. Heath, Christopher 36, Cavendish Square, W. (C. 1867–71, V.P. 1876–8, T. 1879–88, P. 1889–90.) *Trans.* 18.

1879 Henderson, George Courtenay, M.D., Kingston, Jamaica, West Indies.

1882 Heron, George Allan, M.D., 57, Harley Street, W.

1884 Herringham, Wilmot Parker, M.D., 13, Upper Wimpole Street, W. *Trans.* 2. *C.S.* 1.

1888 †Hetherington, George Haynes, 10, Museum Street, Ipswich.

O.M. Hewitt, Graily, M.D., 36, Berkeley Square, W. (C. 1878–9.) *Trans.* 1.

1874 Holderness, William Brown, 15, Park Street, Windsor.

1868 †Holman, Constantine, M.D.

O.M. Holmes, Timothy, 18, Great Cumberland Place, W. (C. 1867–9, V.P. 1873–5.) *Trans.* 16.

O.M. Holt, Barnard Wight, 14, Savile Row, W. *Trans.* 1.

O.M. Holthouse, Carsten. (C. 1870–2.) *Trans.* 8.

1878 Hood, Donald William Charles, M.D., 43, Green Street, W. (C. 1891–2.) *Trans.* 1.

1873 Hope, William, M.D., 54, Curzon Street, W.

1883 Hopkins, John, Central London Sick Asylum, Cleveland Street, W. *C.S.* 1.

1884 Horsley, Victor, M.B., F.R.S., 25, Cavendish Square, W. *Trans.* 2, *C.S.* 1.

1880 *Hovell, T. Mark, 105, Harley Street, W.

1876 Howse, Henry Greenway, M.S., 59, Brook Street, W. (C. 1881–3, V.P. 1890–2.) *Trans.* 3.

O.M. Hulke, John Whitaker, F.R.S., 10, Old Burlington Street, W. (C. 1867–9, V.P. 1878–80.) *Trans.* 13.

O.M. Humphry, Sir George Murray, M.D., LL.D., F.R.S., Cambridge. (V.P. 1867–70.)

1892 Hunter, William, M.D., 61, Wimpole Street, W.

O.M. Hutchinson, Jonathan, F.R.S., 15, Cavendish Square, W. (C. 1867–8, V.P. 1875–6.) *Trans.* 14, *C.S.* 1.

1879 Inkson, James, M.D., Brigade Surgeon, Army.

1883 Jackson, George Henry, 6, Cliff Bridge Terrace, Scarborough.

O.M. Jackson, J. Hughlings, M.D., F.R.S., 3, Manchester Square, W. (C. 1872–3, V.P. 1887.) *Trans.* 2.

1877 Jacobson, Walter Hamilton Acland, M.B., M.Ch., 66, Great Cumberland Place, W. (C. 1890–2.) *Trans.* 2.

Elected

1888 Jamison, Arthur, M.D., C.M., 18, Lowndes Street, S.W.
1888 James, J. T., M.B., 30, Harley Street, W.
1875 Jessett, Frederick Bowreman, 1, Buckingham Palace Mansions, S.W. *Trans.* 1.
O.M. Johnson, Sir George, M.D., F.R.S., 11, Savile Row, W. (V.P. 1874–6.) *Trans.* 5.
1889 Johnson, Raymond, M.B., B.S., 123, Gower Street, W.C.
1878 Johnston, William, M.D., M.C., 16, Lonsdale Terrace, Upper Kent Street, Leicester.
O.M. Jones, Sydney, M.B., 16, George Street, Hanover Square, W. (C. 1867–8, V.P. 1886–7.) *Trans.* 2.
1872 Jones, Thomas Ridge, M.D., 4, Chesham Place, S.W. (C. 1892.)
1876 Jordan, Furneaux, Selly Hill, Birmingham. *Trans.* 1.
1886 Juler, Henry Edward, 23, Cavendish Square, W.
1878 Kentley, Charles Robert Bell, 56, Grosvenor Street, W. *Trans.* 2.
O.M. Kelly, Charles, M.D., Worthing, Sussex.
1882 Kesteven, William Henry, 372, Camden Road, N. *Trans.* 1.
1883 Kidd, Percy, M.D., 60, Brook Street, W. (C. 1891–2.) *Trans.* 4, *C.S.* 2.
1887 †Knaggs, R. Lawford, B.C., Huddersfield. *Trans.* 1.
1878 Lacey, Thomas Warner, 196, Burrage Road, Plumstead.
1890 Lancaster, Ernest Le Cronier, M.B., B.Ch., 1, Northampton Villas, Swansea. *Trans.* 1.
1883 Lane, William Arbuthnot, M.B., M.S., 8, St. Thomas's Street, S.E. *Trans.* 10, *C.S.* 4.
O.M. Langton, John, 62, Harley Street, W. (C. 1878–80, V.P. 1892.) *Trans.* 2.
1886 Lankester, Herbert, M.D., 1, Elm Park Gardens, South Kensington, S.W.
1885 Larder, Herbert, Whitechapel Infirmary, Baker's Row, E. *C.S.* 1.
O.M. Lawson, George, 12, Harley Street, W. (S. 1871–3, C. 1874–6, V.P. 1881–3.) *Trans.* 16.
1877 †Lediard, Henry Ambrose, M.D., 41, Lowther Street, Carlisle. (C. 1889.) *Trans.* 5.
O.M. Lee, Henry, 9, Savile Row, W. (V.P. 1870–2.) *Trans.* 7.
1877 Lees, David B., M.D., 22, Weymouth Street, W. (C. 1885.) *Trans.* 4.
1879 Lichtenberg, George, M.D., 47, Finsbury Square, E.C.
1890 Little, John Fletcher, M.B., 60, Welbeck Street, W.
1868 Little, Louis Stromeyer, China.
1891 Littlewood, Harry, 40, Park Square, Leeds *Trans.* 1.
1875 Liveing, Edward, M.D., 52, Queen Anne Street, W.
1872 Liveing, Robert, M.D., 11, Manchester Square, W. (C. 1883–4.) *Trans.* 2.
1885 Lockwood, Charles Barrett, 19, Upper Berkeley Street, W. *Trans.* 1.

Elected

1876 Longhurst, Arthur Edwin Temple, M.D., 4, Eaton Square, S.W. (C. 1889–91.) *Trans.* 1.

1881 Lubbock, Montagu, M.D., 19, Grosvenor Street, W.

1876 Lucas, R. Clement, M.B., B.S., 18, Finsbury Square, E.C. (C. 1883–5.) *Trans.* 9.

1879 Lunn, John Reuben, New Marylebone Infirmary, Rackham Street, Ladbroke Grove Road, W. (C. 1890–1.) *Trans.* 5, *C.S.* 8.

1889 MacBride, P., M.D., 16, Chester Street, Edinburgh.

1871 Mac Cormac, Sir William, 13, Harley Street, W. (C. 1877–9, V.P. 1888–9.) *Trans.* 5.

1891 MacDonald, Greville, M.D., 85, Harley Street, W.

1883 †Macfarlane, Alexander William, M.D., 6, Manchester Square, W.

1881 McHardy, Malcolm Macdonald, 5, Savile Row, W. *Trans.* 1.

1882 Mackenzie, Frederic Morell, 29, Hans Place, S.W.

1891 Mackenzie, Hector W. G., M.A., M.D., 77, Lambeth Palace Road, S.E. *Trans.* 1.

1879 Mackenzie, Stephen, M.D., 18, Cavendish Square, W. (C. 1884, 1888–90, S. 1885–7.) *Trans.* 9, *C.S.* 10.

1884 Mackern, John, M.B., St. German's Lodge, Shooter's Hill Road, Blackheath.

1879 Maclagan, Thomas John, M.D., 9, Cadogan Place, S.W. (C. 1889–91.) *Trans.* 2.

1885 Maclaren, Roderick, M.D., Portland Square, Carlisle. *Trans.* 1.

1875 Macnamara, Charles, 13, Grosvenor Street, W. (C. 1879–81.) *C.S.* 2.

1879 Magill, James, M.D., M.C., Coldstream Guards Hospital, Vincent Square, Westminster, S.W.

1885 Maguire, Robert, M.D., 4, Seymour Street, W. *Trans.* 1.

1881 Makins, George Henry, 2, Queen Street, W. (C. 1892.) *Trans.* 1, *C.S.* 5.

1887 Malcolm, John D., M.B., C.M., 13, Portman Street, W.

1890 Manson, Patrick, M.D., C.M., 21, Queen Anne Street, W.

1888 †Marriott, Hyde, M.B., Dial House, Stockport.

1868 Marsh, F. Howard, 30, Bruton Street, W. (C. 1876–7, 1881–3, S. 1878–80, V.P. 1887–8.) *Trans.* 12, *C.S.* 3.

1875 Marshall, F. J., St. George's Hospital, S.W.

1887 Martin, Sidney, M.D., B.S., 10, Mansfield Street, W.

1888 Mason, David James, M.D., C.M., Maidenhead.

1884 Maudsley, Henry Carr, M.D., 11, Spring Street, Melbourne, Victoria.

1892 Maunsell, Henry Wideham, M.D., M.A., 37, Stanhope Gardens, Queen's Gate, S.W.

1868 †May, Edward Hooper, M.D., High Cross, Tottenham, Middlesex.

1888 May, William Page, M.D., B.Sc., Goldburn, Eltham Road, Blackheath, S.E.

1888 Menzies, J. Herbert, 47, Earl's Court Square, S.W.

Elected

1878 Meredith, William Appleton, C.M., 21, Manchester Square, W. (C. 1887–9.) *Trans.* 2.

1873 Mickle, William Julius, M.D., Grove Hall Asylum, Bow, E.

1890 Miley, Miles, M.A., M.B., 21, Belsize Avenue, Hampstead, N.W.

1882 Money, Angel, M.D. (C. 1888–90.) *Trans.* 3.

1874 Morgan, John Hammond, 68, Grosvenor Street, W. (C. 1883–5.) *Trans.* 2, *C.S.* 5.

1877 Morris, Henry, M.B., 8, Cavendish Square, W. (C. 1884–6.) *Trans.* 9.

1877 Morris, Malcolm Alex., 8, Harley Street, W. (C. 1890–2.) *Trans.* 1.

1888 Morison, Alexander, M.D., Dunnottar, 115, Green Lanes, Highbury New Park, N. *Trans.* 1.

1885 Mott, Frederick Walker, M.D., C.M., 84, Wimpole Street, W.

1879 Moullin, Charles W. Mansell, 69, Wimpole Street, W. (C. 1888–90.) *Trans.* 5, *C.S.* 1.

1875 Murphy, Shirley F., 41, Queen Anne Street, W. (C. 1888–90.) *C.S.* 1.

1885 Murray, Alexander Dalton, M.B., Ricksmansworth, Herts.

1883 Murray, Hubert Montague, M.D., 27, Savile Row, W. *Trans.* 1.

1868 Myers, Arthur Bowen Richards, 43, Gloucester Street, Warwick Square, S.W. (C. 1877–9.) *Trans.* 1.

1882 Myers, A. T., M.D., 2, Manchester Square, W. (C. 1892.) *Trans.* 1, *C.S.* 1.

1872 Myrtle, Andrew S., M.D., 8, Park Parade, Harrogate. (C. 1892.)

1875 Nettleship, Edward, 5, Wimpole Street, W. (C. 1881–2.) *Trans.* 2.

1889 †Newman, D., M.D., 18, Woodside Place, Glasgow. *Trans.* 1.

O.M. Norton, Arthur Trehern, 101, Harley Street, W. (C. 1874–6.) *Trans.* 7.

O.M. Nunn, Thomas William, 8, Stratford Place, W. (C. 1873–4.) *Trans.* 8.

1890 O'Connor, Bernard, M.D., Greenhill Park, Harlesden, N.W. *Trans.* 1.

O.M. Ogle, John William, M.D., 30, Cavendish Square, W. (C. 1867–8, V.P. 1884–5.) *Trans.* 6.

1868 †Ogle, William, M.D., 98, Friar Gate, Derby.

1883 Oliver, George, M.D., West End Park, Harrogate. *Trans.* 1.

1887 †Oliver, Thomas, M.D., 7, Ellison Place, Newcastle-upon-Tyne.

1857 Openshaw, Thomas Horrocks, M.B., 16, Wimpole Street, W.

1868 Oppert, Franz, M.D., 128, Leipzigerstrasse, Germany. *Trans.* 1.

1877 Ord, William Miller, M.D. (*Treasurer*), 37, Upper Brook Street, W. (C. 1882–4, T. 1889–92.) *Trans.* 8, *C.S.* 1.

1890 Ord, W. Wallis, M.B., B.Ch., 32, Harley Street, W. *C.S.* 1.

1887 Ormerod, Joseph Ardenne, M.D., 25, Upper Wimpole Street, W.

1884 Ormsby, Lambert Herpenstal, M.D., 4, Merrion Square West, Dublin.

1883 Orton, George Hunt, M.B., 1A, Campden Hill Road, Kensington, W.

Elected

1877 Owen, Isambard, M.D., 40, Curzon Street, W. (C. 1888–90.) *Trans.* 1.
1888 Oxley, Alfred Rice, M.D., Streatham Common.
1888 Page, Frederick, M.D., 1, Saville Place, Newcastle-on-Tyne.
1875 Page, Herbert W., M.C., M.B., 146, Harley Street, W. (C. 1882–4.) *Trans.* 6.
1884 Paget, Stephen, 57, Wimpole Street, W. *Trans.* 5, *C.S.* 1.
1873 Parker, Robert William, 13, Welbeck Street, W. (C. 1882–4, 1890–2, S. 1887–9.) *Trans.* 11, *C.S.* 7.
1881 Parker, Rushton, M.B., B.S., 59, Rodney Street, Liverpool. *Trans.* 1, *C.S.* 1.
1890 Parkin, Alfred, M.S., 5, Albion Street, Hull. *Trans.* 1.
1888 Parsons, John Inglis, M.D., 3, Queen Street, May Fair, W.
1881 Pasteur, William, M.D., 4, Chandos Street, W. (C. 1891–2.) *Trans.* 1, *C.S.* 2.
1892 Paul, Frank Thomas, 38, Rodney Street, Liverpool. *Trans.* 1.
1883 Paul, John Liston, M.D., 43, Queensborough Terrace, W.
O.M. Pavy, Frederick William, M.D., F.R.S., 35, Grosvenor Street, W. (C. 1869–71, V.P. 1882–4.) *Trans.* 3.
1886 Payne, Joseph Frank, M.D., 78, Wimpole Street, W. *Trans.* 1.
1879 Peel, Robert, 130, Collins Street East, Melbourne, Victoria.
1886 †Penny, William John, 42, Caledonia Place, Clifton.
1887 Penrose, Francis George, M.D., 4, Harley Street, W.
1882 Pepper, Augustus Joseph, M.S., M.B., 13, Wimpole Street, W. *Trans.* 1.
1874 Phillips, Charles Douglas F., M.D., 10, Henrietta Street, W.
1884 Phillips, Sidney, M.D., 62, Upper Berkeley Street, W. *Trans.* 4.
O.M. Pick, Thomas Pickering, 18, Portman Street, W. (S. 1874–7, C. 1878–80, V.P. 1885–6.) *Trans.* 4.
1885 Pitt, George Newton, M.D., 24, St. Thomas's Street, S.E.
1883 Pitts, Bernard, M.A., M.C., 31, Harley Street, W. *Trans.* 4.
1871 †Playne, Alfred, M.B., Maidenhead.
1884 Poland, John, 4, St. Thomas's Street, S.E.
1884 Pollard, Bilton, 24, Harley Street, W. *Trans.* 2.
1868 Pollock, James Edward, M.D., 52, Upper Brook Street, W. (C. 1878–80.)
1871 Poore, George Vivian, M.D., 30, Wimpole Street, W. (C. 1879–81.) *Trans.* 3.
1873 Port, Heinrich, M.D., 48, Finsbury Square, E.C.
O.M. Powell, R. Douglas, M.D., 62, Wimpole Street, W. (C. 1874–6, V.P. 1889–90.) *Trans.* 4.
1868 Prentis, Charles, Surgeon-Major, Bengal Medical Service; India.
1884 Pringle, John James, M.B., 23, Lower Seymour Street, W. *Trans.* 1, *C.S.* 1.
1884 Pye-Smith, Philip Henry, M.D., F.R.S., 54, Harley Street, W. (C. 1890–2.) *Trans.* 1.

Elected

O.M. Quain, Sir Richard, Bart., M.D., LL.D., F.R.S., 67, Harley Street, W. (C. 1867–9.)

O.M. Ramskill, J. Spence, M.D., 5, St. Helen's Place, E.C.

1869 Ranking, John E., M.D., Hanover House, Tunbridge Wells.

1873 Ransford, Gifford, M.D., 22, Sussex Square, W. (C. 1884–5.)

1868 Rasch, Adolphus A., M.D., 7, South Street, E.C.

1883 Read, Thomas Laurence, 11, Petersham Terrace, Queen's Gate, S.W.

1891 Rempey, Leonard, M.D., 60, Great Cumberland Place, W. *Trans.* 1.

O.M. Reynolds, John Russell, M.D., F.R.S., 38, Grosvenor Street, W. (C. 1867–8.)

1868 Rice, Michael W., M.D. (C. 1876–8.)

O.M. Ringer, Sydney, M.D., F.R.S., 15, Cavendish Place, W. (C. 1871–2.)

1877 Rivington, Walter, M.S., 95, Wimpole Street, W. (C. 1886–8.) *Trans.* 3.

1873 †Roberts, David Lloyd, M.D., 11, St. John Street, Manchester.

1888 Roberts, Frank Ernest, Tulse Dale Villa, Lower Norwood, S.E.

1883 Roberts, Frederick Thomas, M.D., 102, Harley Street, W. (C. 1892.)

1890 Robertson, Robert, M.D., Belgrave Road, Ventnor, Isle of Wight.

1885 Robinson, Arthur Henry, M.D., Mile End Infirmary, Bancroft Road, N.E. *C.S.* 3.

1890 Robinson, George Somerville, Surgeon-Major, Army.

1885 Robson, A. W. Mayo, Hilary Place, Leeds. *Trans.* 8.

1889 Rolleston, Humphry Davy, M.A., M.D., 13, Upper Wimpole Street, W. *Trans.* 1.

1888 Roper, Arthur, Lewisham Hill, Blackheath.

1889 Ross, Daniel McClure, 54, Upper Berkeley Street, W.

1877 Roth, Bernard, 29, Queen Anne Street, W. *Trans.* 1, *C.S.* 4.

1890 Roughton, Edmund Wilkinson, 33, Westbourne Terrace, W.

O.M. Rouse, James, 2, Wilton Street, S.W. (C. 1875–7.) *Trans.* 2.

1874 Rowland, Edward Roger, Dordrecht, Wodehouse, S. Africa.

1887 Rutherfoord, H. T., M.B., 46, Queen Anne Street, W.

1885 Ryle, Reginald John, M.D., Green View, Hadley Green, Barnet.

1882 Sainsbury, Harrington, M.D., 63, Welbeck Street, W.

O.M. Sanderson, John Burdon, M.D., LL.D., F.R.S., 50, Banbury Road, Oxford. (S. 1867–9, C. 1870, V.P. 1871–3.) *Trans.* 3.

1873 Savage, George Henry, M.D., 3, Henrietta Street, W. (C. 1882–3.)

1886 Savill, Thomas Dixon, M.D., Paddington Infirmary, 285, Harrow Road, W. *Trans.* 1, *C.S.* 2.

1886 Scott, Alfred, 15, German Place, Brighton.

1877 Seaton, Edward, M.D., 35, George Street, Hanover Square, W. *Trans.* 1.

1869 Sedgwick, Leonard William, M.D., 2, Gloucester Terrace, Hyde Park, W. (C. 1879–81.)

1878 Semon, Felix, M.D., 39, Wimpole Street, W. (C. 1885–7.) *Trans.* 7, *C.S.* 3.

ELECTED

1884 SHARKEY, SEYMOUR, J., M.D., 2, Portland Place, W.

1889 SHAW, LAURISTON ELGIN, M.D., 10, St. Thomas's Street, S.E.

1875 SHERWOOD, ARTHUR PAUL, 8, Seaside Road, Eastbourne.

O.M. SIBLEY, SEPTIMUS WILLIAM, 7, Harley Street, W. (C. 1871–4, V.P. 1890–1.)

1886 SILCOCK, ARTHUR QUARRY, M.D., M.S., 52, Harley Street, W. *Trans.* 1. *C.S.* 2.

1879 SKERRITT, EDWARD MARKHAM, M.D., Coburg Villa, Richmond Hill, Clifton, Bristol. *Trans.* 2.

1872 SLIGHT, GEORGE, M.D., 37, Western Street, King's Road, Brighton.

1882 SMITH, E. NOBLE, 24, Queen Anne Street, W. *Trans.* 1.

1888 SMITH, FREDERICK J., M.B., 4, Christopher Street, Finsbury Square, E.C.

1884 SMITH, R. PERCY, M.D., Bethlem Royal Hospital, St. George's Road, S.E.

O.M. SMITH, THOMAS, 5, Stratford Place, W. (C. 1869–71, V.P. 1880–2.) *Trans.* 14.

1875 SMITH, T. GILBART, M.A., M.D., 68, Harley Street, W. (C. 1883–5.)

1872 SMITH, WILLIAM WILBERFORCE, M.D., 14, Stratford Place, W.

1868 SNOW, WILLIAM V., M.D., Richmond Gardens, Bournemouth.

1890 SOLLY, ERNEST, M.B., Royal Free Hospital, Gray's Inn Road, W.C. *C.S.* 1.

O.M. SOUTHEY, REGINALD, M.D., 32, Grosvenor Road, Pimlico, W. (C. 1867–70, 1876–8, S. 1873–5, V.P. 1883–4.) *Trans.* 16.

1888 SPENCER, WALTER GEORGE, M.S., M.B., 35, Brook Street, W. *C.S.* 4.

1885 SPICER, FREDERICK, M.D., 282, Camden Road, N.W.

1888 SPICER, ROBERT HENRY SCANES, M.D., 28, Welbeck Street, W.

1882 SPOONER, FREDERICK HENRY, M.D., 4, Maitland Place, Lower Clapton, N.E.

1876 SQUIRE, A. BALMANNO, M.B., 24, Weymouth Street, W. *Trans.* 5, *C.S.* 3.

1879 STAPLES, FRANCIS PATRICK, Brigade-Surgeon, Grove House, Dartmouth Road, Blackheath, S.E.

1889 STEWART, EDWARD, M.D.

1871 STEWART, WILLIAM EDWARD, 16, Harley Street, W.

1874 †STIRLING, EDWARD C., M.D. [care of Messrs. ELDER & Co., 7, St. Helen's Place, E.C.], Adelaide, South Australia.

1888 STOKER, GEORGE, 14, Hertford Street, W.

1881 STOKES, HENRY FRASER, 2, Highbury Crescent, N.

1878 STOKES, Sir WILLIAM, M.D., 5, Merrion Square North, Dublin. *Trans.* 2.

1884 STONHAM, CHARLES, 4, Harley Street, W. *C.S.* 3.

1878 STRUGNELL, FREDERICK WILLIAM, 45, Highgate Road, Highgate, N.W. *C.S.* 1.

1878 †STURGE, WILLIAM ALLEN, M.D., 29, Boulevard Dubouchage, Nice, France. *Trans.* 4.

ELECTED

1872 *SUTHERLAND, HENRY, M.D., 6, Richmond Terrace, Whitehall, S.W. *Trans.* 1.

1887 SUTTON, JOHN BLAND, 46, Queen Anne Street, W. *Trans.* 8.

1882 SYMONDS, CHARTERS JAMES, M.S. (C.), 26, Weymouth Street, W. (C. 1888–9.) *Trans.* 11, *C.S.* 4.

1876 SYMONDS, HORATIO PERCY, 35, Beaumont Street, Oxford.

1885 TAIT, EDWARD SABINE, M.B., 48, Highbury Park, N.

1885 TAIT, HENRY BREWER, Lincluden, Sunnyside Road, Hornsey Lane, N.

1891 TATE, WALTER WILLIAM HUNT, 2, The Terrace, Camden Square, N.W.

1868 TATHAM, JOHN, M.D., 12, George Street, Hanover Square, W.

1886 TAY, WAREN, 4, Finsbury Square, E.C.

1878 TAYLER, FRANCIS THOMAS, M.B., 224, Lewisham High Road, S.E.

1875 TAYLOR, FREDERICK, M.D., 20, Wimpole Street, W. (S. 1879–81, C. 1882–4.) *Trans.* 9, *C.S.* 2.

1889 †TAYLOR, HENRY HERBERT, 10, Brunswick Place, Brighton.

1890 TAYLOR, JAMES, M.D., 45, Weymouth Street, W.

1882 TAYLOR, SEYMOUR, M.D., 16, Seymour Street, W. *Trans.* 1, *C.S.* 1.

1885 †TAYLOR, W. C. EVERLEY, 34, Queen Street, Scarborough.

1886 TEALE, THOMAS PRIDGIN, M.B., F.R.S., 38, Cookridge Street, Leeds.

1890 THANE, EDGAR HERBERT, M.B., Sydney, New South Wales.

1882 THIN, GEORGE, M.D., 22, Queen Anne Street, W. *Trans.* 1.

1886 THOMPSON, CHARLES HERBERT, M.D., 21, Half Moon Street, W.

O.M. THOMPSON, EDMUND SYMES, M.D., 33, Cavendish Square, W. (C. 1880–2.) *Trans.* 1.

O.M. THOMPSON, Sir HENRY, 35, Wimpole Street, W. (C. 1867–8, V.P. 1886–7.) *Trans.* 3.

1887 THORNTON, JOHN KNOWSLEY, M.B., C.M., 22, Portman Street, W. (C. 1890–1.)

1872 THORNTON, WILLIAM PUGIN, 35, St. George's Road, Canterbury. *Trans.* 5.

1883 THURSFIELD, THOMAS WILLIAM, M.D., Selwood, Beauchamp Square, Leamington.

1891 TOMSON, BOLTON, M.D., Park Street West, Luton, Bedfordshire.

1887 TOTSUKA, KANKAI.

1874 TRAVERS, WILLIAM, M.D., 2, Phillimore Gardens, Kensington, W.

1884 TREVES, FREDERICK, 6, Wimpole Street, W. *Trans.* 6.

1882 TURNER, FRANCIS CHARLEWOOD, M.D., 15, Finsbury Square, E.C. (C. 1887–9.) *Trans.* 1.

1882 TURNER, GEORGE ROBERTSON, 49, Green Street, W. *Trans.* 6.

1888 TURNER, PHILIP DYMOCK, M.D., 95, Cromwell Road, S.W.

1877 TWEEDY, JOHN, 100, Harley Street, W.

1878 TYSON, WILLIAM JOSEPH, M.D., 10, Langhorne Gardens, Folkestone. (C. 1886–8.) *Trans.* 5.

1881 UNTHOFF, JOHN CALDWELL, M.D., 46, Western Road, Hove, Brighton.

1868 VENNING, EDGCOMBE, 30, Cadogan Place, S.W. (C. 1876–8.) *Trans.* 2.

Elected

1890 Voelcker, Arthur Francis, M.D., B.S., 13, Welbeck Street, W. *Trans.* 1.

1886 Wade, Charles H., Scotleigh, Chudleigh, Devon.

1868 Wagstaffe, William Warwick, Purleigh, St. John's Hill, Sevenoaks. (C. 1878.)

1886 *Wainewright, Benjamin, M.B., C.M., 67, Grosvenor Street, W. *Trans.* 2, *C.S.* 1.

1885 Wakley, Thomas, jun., 5, Queen's Gate, W.

1885 Walker, Charles Rotherham, M.D., 7, Grove Road, Leytonstone, E.

1890 Wallis, Frederick Charles, M.B., B.S., 18, St. James's Street, S.W.

1875 Walsham, William J., 27, Weymouth Street, W. (C. 1882–4.) *Trans.* 5, *C.S.* 1.

1888 Walters, Frederick Rufenacht, M.D., 20, Finsbury Circus, E.C.

1888 †Warner, Percy, Woodford, Essex.

1891 Waterhouse, Herbert Furnivall, M.D., 34, Bernard Street, W.C.

1868 Watkins, Edwin T., M.D., 61, Guildford Street, W.C. (C. 1881–3.)

1879 de Watteville, Armand, M.A., M.D., B.Sc., 30, Welbeck Street, W.

O.M. Weber, Hermann, M.D., 10, Grosvenor Street, W. (C. 1867–71, V.P. 1873–5.) *Trans.* 9.

1876 Weir, Archibald, M.D., St. Mungho's, Great Malvern.

1868 Wells, Sir Thomas Spencer, Bart., 3, Upper Grosvenor Street, W. (C. 1873.)

1882 West, Samuel, M.D., 15, Wimpole Street, W. (C. 1887–9.) *Trans.* 10, *C.S.* 1.

1874 Wheelhouse, Claudius Galen, Hilary Place, Leeds. *Trans.* 1.

1868 Whipham, Thomas Tillyer, M.B., 11, Grosvenor Street, W. (C. 1878–80.) *Trans.* 13.

1874 Whistler, W. McNeil, M.D., 17, Wimpole Street, W.

1891 White, Charles Percival, M.B., B.C., 144, Sloane Street, S.W.

1882 White, Edwin Francis, 7, Dealtry Road, Putney.

1890 White, Gilbert B. Mower, M.B., B.S., 39, Torrington Square, W.C.

1883 White, William Hale, M.D., 65, Harley Street, W. (C. 1887–9.) *Trans.* 7, *S.C.* 2.

1883 White, William Henry, M.D., 43, Weymouth Street, W. *C.S.* 1.

1882 Whittle, Edward George, M.D., 65, Dyke Road, Brighton.

1871 Wight, George, M.B., C.M.; 428, Liverpool Road, N.

1879 Wilcox, Henry, M.B., Dorchester House, Herbert Road, Woolwich.

O.M. Wilks, Samuel, M.D., F.R.S., 72, Grosvenor Street, W. (C. 1871–2, V.P. 1886–7.) *Trans.* 1.

1884 Willcocks, Frederick, M.D., 14, Mandeville Place, W. *C.S.* 1.

O.M. Willett, Alfred, 36, Wimpole Street, W. (C. 1872–5, V.P. 1889–91.) *C.S.* 1.

1890 Willett, Edgar, M.B., 25, Welbeck Street, W.

1888 Williams, Campbell.

Elected

O.M. Williams, Charles Theodore, M.D., 2, Upper Brook Street, W. (C. 1877–9, V.P. 1889–90.) *Trans.* 8.

1888 Williams, Dawson, M.D., 25, Old Burlington Street, W.

1881 Williams, John, M.D., 63, Brook Street, W. (C. 1885–6.)

1870 Williams, William Rhys, M.D., Linden House, Bertie Road, Leamington.

1890 Williams, W. Roger, 28, Winckley Square, Preston.

1876 Williamson, James Mann, M.D., Ventnor, Isle of Wight.

O.M. Willis, Francis, M.D., The Spa, Bracebourough, Stamford.

1889 Wills, William Alfred, M.D., Chelsea Lodge, Tite Street, S.W.

1886 Wilson, Albert, M.D., Leytonstone, Essex.

1888 †Wilson, Claude, M.D., C.M., Belmont, Tunbridge Wells.

1891 Wilson, Theodore Stacey, M.B., C.M., 65, Temple Row, Birmingham.

1890 Wood, Neville, 42, Elvaston Place, Queen's Gate, S.W.

1883 Woodcock, John Rostron, 263, Hagley Road, Birmingham.

1879 Woodward, George P. M., M.D., Deputy Surgeon-General; Sydney, New South Wales.

1884 Worts, Edwin, 6, Trinity Street, Colchester.

1888 Wyman, William S., M.D., Red Brae, 18, Putney Hill, S.W.

1892 Wynter, Walter Essex, M.D., B.S., 30, Upper Berkeley Street, W.

1872 Yeo, I. Burney, M.D., 44, Hertford Street, W. (C. 1881–3.) *Trans.* 8.

[*It is requested that any change of Title or Residence be communicated to the Secretaries before the 1st of July in each year, in order that the list may be made as correct as possible.*]

LIST OF MEMBERS.

ORIGINAL MEMBERS (ALPHABETICALLY).

Sir Henry Acland, M.D., F.R.S.
James Andrew, M.D.
Henry Arnott.
W. Morrant Baker.
Richard Barwell.
Henry Charlton Bastian, M.D., F.R.S.
John Syer Bristowe, M.D., F.R.S.
William Henry Broadbent, M.D.
Bernard Edward Brodhurst.
Thomas Bryant.
Sir George Buchanan, M.D., F.R.S.
Thomas Buzzard, M.D.
William Cayley, M.D.
William Selby Church, M.D.
Edward Clapton, M.D.
Sir Andrew Clark, Bart., M.D., F.R.S.
John Couper.
John Croft.
William Howship Dickinson, M.D.
John Langdon Down, M.D.
Sir Dyce Duckworth, M.D.
Alfred B. Duffin, M.D.
Arthur Edward Durham.
John Eric Erichsen, F.R.S.
John Harley, M.D.
Christopher Heath.
Graily Hewitt, M.D.
Timothy Holmes.
Barnard Wight Holt.
Carsten Holthouse.
John Whitaker Hulke, F.R.S.
Sir George Murray Humphry, M.D., LL.D., F.R.S.
Jonathan Hutchinson, F.R.S.
J. Hughlings Jackson, M.D., F.R.S.
Sir William Jenner, Bart., M.D., F.R.S.
Sir George Johnson, M.D., F.R.S.
Sydney Jones.
Charles Kelly, M.D.
John Langton.
George Lawson.
Henry Lee.
Arthur Trehern Norton.
Thomas William Nunn.
John William Ogle, M.D.
Sir James Paget, Bart., F.R.S.
Frederick William Pavy, M.D., F.R.S.
Thomas Pickering Pick.
Richard Douglas Powell, M.D.
Sir Richard Quain, Bart., M.D., F.R.S.
J. Spence Ramskill, M.D.
John Russell Reynolds, M.D., F.R.S.
Sydney Ringer, M.D., F.R.S.
James Rouse.
John Burdon Sanderson, M.D., F.R.S.
Septimus William Sibley.
Thomas Smith.
Reginald Southey, M.D.
Edward Symes Thompson, M.D.
Sir Henry Thompson.
Hermann Weber, M.D.
Samuel Wilks, M.D., F.R.S.
Alfred Willett.
Charles Theodore Williams, M.D.
Francis Willis, M.D.

ARRANGED ACCORDING TO DATE OF ELECTION.

1868 Constantine Holman, M.D.
Thomas Tillyer Whipham, M.B.
Christian G. H. Baümler, M.D.
John Cavafy, M.D.
Frederick James Gant.
James Grey Glover.
T. Henry Green, M.D.
Howard Marsh.
Arthur Bowen Richards Myers.
Charles Prentis.
Adolphus A. Rasch, M.D.
Edgcombe Venning.
Sir Thomas Spencer Wells, Bart.
John Ford Anderson, M.D.
George Granville Bantock, M.D.
George Charles Bright, M.D.
Frank W. Cooper.
Julian Evans, M.B.
Edward Hooper May, M.D.
Henri Gueneau de Mussy, M.D.
William Warwick Wagstaffe.
Edwin T. Watkins, M.D.
William Ogle, M.D.
Protheroe Smith, M.D.
James Edward Pollock, M.D.
Franz Oppert, M.D.
William V. Snow, M.D.
Charles Drage, M.D.
John Tatham, M.D.
Frederick Royston Fairbank, M.D.
Michael W. Rice, M.D.
William Henry Day, M.D.
John Meaburn Bright, M.D.
Louis Stromeyer Little.

1869 Robert Brudenell Carter.
Leonard William Sedgwick, M.D.
J. Warrington Haward.
Henry Frederick Augustus Goodridge, M.D.
Olliver Thomas Duke, M.B.

1870 William Rhys Williams, M.D.

1871 Julius Althaus, M.D.
Robert M. Gover, M.B.
Sir William Mac Cormac.
Alfred Playne, M.B.
William F. Butt.
George Wight, M.B.
Ebenezer Diver, M.D.
George Vivian Poore, M.D.
William Edward Stewart.

1872 Thomas Cooke.
J. Burney Yeo, M.D.
Henry Harris, M.D.
William Pugin Thornton.
Robert Liveing, M.D.
Anderson Critchett.
J. C. J. Fenwick, M.D.
Andrew J. Myrtle, M.D.
Sir William Bartlett Dalby.
Thomas Ridge Jones, M.D.
George Slight, M.D.
Henry Sutherland, M.D.
William Wilberforce Smith, M.D.
Gifford Ransford, M.D.

1873 William Julius Mickle, M.D.
Robert William Parker.
David Lloyd Roberts, M.D.
George Henry Savage, M.D.
Heinrich Port, M.D.
Edwin Chisholm, M.D.
Thomas Churton, M.D.
William Hope, M.D.

1874 John Hammond Morgan.
Edward R. Rowland.
Claudius Galen Wheelhouse.
Charles Douglas F. Phillips, M.D.
W. M. Whistler, M.D.
Edward C. Stirling, M.D.
William Henry Bennett.
William Travers, M.D.
William Brown Holderness.
Andrew Clark.

1875 Thomas Barlow, M.D.
Marcus Beck, M.S.
Sidney Coupland, M.D.
Clinton T. Dent.
C. D. B. Hale.
Frederick Bowreman Jessett.
Edward Liveing, M.D.
F. J. Marshall.
Edward Nettleship.
William J. Walsham.
Rickman John Godlee, M.S.
Arthur Paul Sherwood.
T. Gilbart Smith, M.D.
James Frederic Goodhart, M.D.
William Richard Gowers, M.D., F.R.S.
William Smith Greenfield, M.D.
Charles Macnamara.
Shirley F. Murphy.
Herbert W. Page.
Frederick Taylor, M.D.

1876 Arthur E. J. Barker.

1876 Horatio Percy Symonds.
A. Balmanno Squire, M.B.
Archibald Weir, M.D.
David White Finlay, M.D.
Henry Greenway Howse, M.S.
Furneaux Jordan.
R. Clement Lucas, B.S.
James Mann Williamson, M.D.
George Buckston Browne.
Arthur Edwin Temple Longhurst, M.D.

1877 Robert Hogarth Clay, M.D.
A. Pearce Gould.
Henry Radcliffe Crocker, M.D.
David B. Lees, M.D.
Walter Hamilton Aclaud Jacobson, M.B., M.Ch.
Isambard Owen, M.D.
William Ewart, M.D.
Henry Morris, M.B.
William Miller Ord, M.D.
Walter Rivington, M.B.
Edward Seaton, M.D.
Henry Ambrose Lediard, M.D.
Bernard Roth.
John Tweedy.
Henry Hugh Clutton.
Malcolm Alex. Morris.

1878 George P. Field.
Thomas Warner Lacey.
Thomas Colcott Fox, M.B.
Felix Semon, M.D.
Henry de Fonmartin, M.D.
C. H. Golding-Bird, M.B.
Donald Wm. Charles Hood, M.D.
Sir Joseph Lister, Bart., F.R.S.
Francis Thomas Tayler, M.B.
F. de Havilland Hall, M.D.
Storer Bennett.
Sir William Stokes, M.D.
William Allen Sturge, M.D.
William Joseph Tyson, M.D.
James Barry Ball, M.D.
William Johnston, M.D.
Charles Robert Bell Keetley.
William Appleton Meredith, C.M.
Frederick William Strugnell.

1879 William Adams.
William Edward Burton.
James Magill, M.D.
Wm. John Vereker Bindon, M.D.
Edward Markham Skerritt, M.D.
Henry Wilcox, M.B.
James Inkson, M.D.

1879 John Abercrombie, M.D.
F. G. Dawtrey Drewitt, M.D.
Stephen Mackenzie, M.D.
William Harrison Cripps.
Francis Patrick Staples.
Geo. Courteney Henderson, M.D.
Thomas John Maclagan, M.D.
Henry Davy.
Thos. Walter Harropp Garstang.
George Lichtenberg, M.D.
Charles W. Mansell Moullin.
John Reuben Lunn.
Armand de Watteville, M.D.
George P. M. Woodward, M.D.
J. Neville Davies-Colley, C.M.
Robert Peel.
Frederic S. Dennis, M.D.

1880 T. Mark Hovell.
Wyndham Cottle, M.D.
B. Ball, M.D.
Henry Francis Baker.
Bernard O'Connor, M.D.
Charles Edward Beevor, M.D.

1881 George Henry Makins.
Robert William Burnet, M.D.
James Kingston Fowler, M.D.
Charles Edward Harrison, M.B.
Malcolm Macdonald McHardy.
Rushton Parker.
John Williams, M.D.
Montagu Lubbock, M.D.
James Black.
William Pasteur, M.D.
Henry Fraser Stokes.
John Caldwell Uhthoff, M.D.
Henry Trentham Butlin.

1882 George Robertson Turner.
E. Noble Smith.
Robert William Goldie.
Walter Baugh Hadden, M.D.
Frederick Charles Barker, M.D.
William Henry Kesteven.
Frederic Morell Mackenzie.
A. T. Myers, M.D.
Daniel Colquhoun, M.D.
Seymour Taylor, M.D.
Francis Charlewood Turner, M.D.
Philip Henry Bindley, M.B.
Edward George Whittle, M.D.
D. H. Goodsall.
Frederick Henry Spooner, M.D.
J. W. Dennis Dallaway.
Frederick Haycraft Berry, M.D.
Herbert Collier, M.D.

1882 Samuel West, M.D.
Emile Emond, M.D.
Eugene Goddard, M.D.
Charters James Symonds.
Angel Money, M.D.
C. F. Coxwell, M.B.
George Allan Heron, M.D.
Augustus Joseph Pepper, M.B.
Harrington Sainsbury, M.D.
George Thin, M.D.
Edwin Francis White.

1883 Charles Gross.
Anthony A. Bowlby.
James Anderson, M.D.
Cecil Yates Biss, M.D.
Percy Kidd, M.D.
William Henry White, M.D.
George Oliver, M.D.
Hubert Montague Murray, M.D.
Robert Fitzroy Benham.
William Henry Allchin, M.B.
John Mitchell Bruce, M.D.
William Arbuthnot Lane, M.S.
Bernard Pitts.
Winckworth Tonge Smith, M.D.
William Hale White, M.D.
William Coode Adams, M.B.
William Anderson.
Robert Leamon Bowles, M.D.
James Dixon Bradshaw, M.D.
George Henry Jackson.
George Hunt Orton, M.B.
John Liston Paul, M.D.
Thomas Laurence Read.
Frederick Thomas Roberts, M.D.
Charles Alfred Ballance, M.B.
John Hopkins.
John Rostron Woodcock.
Alexander Wm. Macfarlane, M.D.

1884 Frederick Willcocks, M.D.
R. Percy Smith, M.D.
Edgar Duke.
John Mackern, M.B.
Paul M. Chapman, M.D.
Wilmot Parker Herringham, M.B
Philip Henry Pye-Smith, M.D. F.R.S.
Charles Stonham.
Dudley Wilmot Buxton, M.D.
Edwin Worts.
Seymour J. Sharkey, M.B.
Frederick Treves.
William Elgar Buck, M.D.
John James Pringle, M.B.

1884 Frederick Lucas Benham, M.D.
Walter Edmunds, M.D.
Stephen Paget.
Lambert Hepenstal Ormsby, M.D.
John Poland.
Edwin Leonard Adeney, M.D.
Victor Horsley, F.R.S.
Henry Carr Maudsley, M.D.
Bilton Pollard.

1885 Frederick Spicer, M.B.
Herbert Larder.
A. Hughes Bennett.
James Berry.
Frederick Walker Mott, M.D.
George Newton Pitt, M.D.
W. C. Everley Taylor.
Sidney Philip Phillips, M.D.
A. W. Mayo Robson.
Thomas Wakley, jun.
Herbert William Allingham.
Thomas William Thursfield, M.D.
Alexander Dalton Murray, M.B.
Robert Maguire, M.D.
Robert Alexander Gibbons, M.D.
Thomas Fitz-Patrick, M.D.
Wm. Dobinson Halliburton, M.D.
Henry Brewer Tait.
Charles Rotherham Walker, M.D.
Richard Caton, M.D.
Arthur Henry Robinson, M.D.
Edward Sabine Tait, M.B.
William Bruce Clarke.
Charles Barrett Lockwood.
Reginald J. Ryle, M.D.
J. Michell Clarke, M.B.
Henry George Armstrong.
Roderick Maclaren, M.D.
W. Watson Cheyne.
Edward Liveing Fenn, M.D.

1886 Thomas Dixon Savill, M.D.
John Cahill.
Charles Henry Wade.
Benjamin Wainewright.
Waren Tay.
William John Penny.
William Henry Battle.
James Hardie, M.D.
Francis Henry Hawkins, M.B.
R. Hingston Fox, M.D.
Henry Edward Juler.
John Ward Cousins, M.D.
Joseph Frank Payne, M.D.
T. Pridgin Teale.
H. H. Lankester.

1886 Arthur T. Davies, M.B.
William C. Bull, M.B.
Charles Herbert Thompson, M.D.
Arthur Quarry Silcock.
Henry Handford, M.D.
Alfred Scott.
Albert Wilson, M.D.

1887 Archibald E. Garrod, M.D.
H. T. Rutherfoord, M.B.
Kankai Totsuka.
Thomas Oliver, M.D.
Francis George Penrose, M.D.
Samuel Herbert Habershon, M.D.
John Knowsley Thornton.
John Bland Sutton.
Oswald Anchinleck Browne, M.B.
Albert C. Butler-Smythe.
Joseph Arderne Ormerod, M.D.
C. J. Arkle, M.D.
J. H. E. Brock, M.B., B.S.
Francis William Clark.
A. H. Weiss Clemow, M.D., C.M.
Charles E. H. Cotes, M.B.
E. Hurry Fenwick.
Henry William Freeman.
R. Lawford Knaggs, B.C.
John D. Malcolm, M.B., C.M.
Sidney Martin, M.D., B.S.
Thomas Horrocks Openshaw, M.B.

1888 A. G. Barrs, M.D.
J. W. Batterham, M.B., B.S.
Montagu Handfield-Jones, M.D.
Alfred Rice Oxley, M.D.
Arthur Roper.
Robert Henry Scanes Spicer, M.D.
Campbell Williams.
Frederic S. Eve.
Alexander Morison, M.D.
Frederick Page, M.D.
Frederick J. Smith, M.B.
Frederick R. Walters, M.D.
Claude Wilson, M.D., C.M.
Charles H. Gage-Brown, M.D.
Arthur Jamison, M.D., C.M.
J. H. Menzies.
Frank Ernest Roberts.
George Stoker.
Robert Ashton Bostock.
Hugh Armstrong.
Hyde Marriott, M.B.
Percy Warner.
J. F. James, M.B.
Edwin A. Barton.
W. P. May, M.B.

1888 Philip D. Turner, M.D.
William S. Wyman, M.D.
Dawson Williams, M.D.
Augustus W. Addinsell, M.B., C.M.
John Anderson, M.D.
Henry French Banham, M.D.
George Haynes Hetherington.
David James Mason, M.D., C.M.
John Inglis Parsons, M.D.
Walter G. Spencer, M.S., M.B.

1889 Theodore Dyke Acland, M.D.
Raymond Johnson, M.B., B.S.
H. Davy Rolleston, M.B., B.S.
P. MacBride, M.D.
D. Newman, M.D.
Herbert Elwin Harris, M.D.
John E. Ranking, M.D.
William Alfred Wills, M.B.
Edward Ashby Fardon.
Wm. Alexander Carte, M.D., M.Ch.
Stanley Boyd, M.B.
George Ezra Halstead, M.D., B.S.
Edward Stewart, M.D.
Henry Herbert Taylor.
John Duncan, M.D.
Wm. Wallis Ord, M.B., B.Ch.
Leonard Arthur Bidwell.
Arthur J. M. Bentley, M.D.
Francis R. B. Bisshopp, M.B.
Henry Percy Dean, M.B., B.S.
Louis Albert Dunn, M.S.
Percy Flemming, M.B.
Daniel Mackay Forbes.
H. Pennell Hawkins, M.B., B.S.
D. M. Ross.
Lauriston Elgin Shaw, M.D.

1890 John Rose Bradford, M.D.
J. Fletcher Little, M.B.
Robert Robertson, M.D.
Ernest Solly, M.B.
James Taylor, M.D.
Francis O. Buckland, B.A., M.B., C.M.
E. Baxter Forman, M.D.
G. Somerville Robinson.
Edmund W. Roughton, B.S.
Edgar Willett, M.B.
Thomas H. Rickard Crowle.
Robert A. Bindley.
James Calvert, M.D.
H. Roxburgh Fuller, M.D.
Arthur F. Voelcker, M.D.

1890 Neville Wood.
W. Roger Williams.
Gilbert B. M. White, M.B., B.S.
Frederick Charles Wallis, M.B., B.S.
Alfred Parkin, M.S.
George A. Hawkins-Ambler.
James Harper, M.D.
Walter Henry Brown.
John Walter Carr, M.D.
Ernest Le Cronier Lancaster, M.B., B.Ch.
Patrick Manson, M.D., C.M.
Miles Miley, M.A., M.B.
Edgar Herbert Thane, M.B.
Charles William Chapman, M.D.
Michael G. Foster, M.B., M.A.
1891 Frederic Francois Burghard, M.D., M.S.
H. E. Leigh Canney, M.B.
Roger Neville Goodman, M.B.
Herbert Furnivall Waterhouse, M.D.
1891 Leonard Remfry, M.D.
Walter William Hunt Tate.
William Lee Dickinson, M.B.
Greville MacDonald, M.D.
J. Kingston Barton.
Henri Dardenne, M.B.
J. Dundas Grant, M.D.
W. Kington Fyffe, M.B., B.C.
Albert Carless, M.S., M.B.
Bolton Tomson, M.D.
Harry Littlewood, M.D.
Hector W. G. Mackenzie, M.A., M.D.
Chas. Percival White, M.B., B.C.
Arnold Caddy.
Theodore Stacey Wilson, M.B., C.M.
1892 William Hunter, M.D.
Frank Thomas Paul.
Edward Cotterell.
Frank Richardson Blaxall, M.D.
Walter Essex Wynter, M.D., B.S.
Damer Harrison.
Henry Widenham Maunsell, M.D.

REPORT

OF THE

COUNCIL OF THE CLINICAL SOCIETY.

MAY, 1892.

THE COUNCIL are again able to report progress and prosperity in the Society's affairs.

The Members now number 524, of whom 16 have been elected since the last report. There have been two resignations, and the Council regret that eight Members have been lost through death, viz. Sir Prescott Hewett, Bart., a former President of the Society, Dr. Sutton and Mr. Berkeley Hill, both of whom were Vice-Presidents at the time of their decease, Mr. William Adams (Regent's Park Road), Sir Morell Mackenzie, Mr. Edward Milner, Dr. Hugh J. Sanderson, and Dr. Sawtell.

A reference to the balance-sheet will show that the financial condition of the Society is sound; the current income has been more than enough for the working expenses, a sum of £240 12*s.* 9*d.* remaining to be carried forward. The invested capital continues as before—£600.

In consequence of the alteration in the date of the Annual Meeting from January to May, in accordance with the revised Rules adopted by the Society at the Annual Meeting of January 9, 1891, it has been thought advisable that the financial year should terminate on April 30 instead of on December 31, as has hitherto been the custom. The present financial statement, therefore, extends over the period from January 1, 1891, to April 30, 1892.

In order to avoid any possible misunderstanding with

regard to the real position of the finances of the Society, it is proper to state that the unusually large balance in hand (£240 12*s.* 9*d.*) to a great extent depends upon the fact that the balance-sheet includes the receipts during the whole period of sixteen months, whereas the expenditure is practically limited to twelve months, as no payments, beyond small sums as petty cash, have been made since December 31, 1891. Accounts to the amount of £85 or thereabouts will almost immediately become due, so that the working balance actually at the disposal of the Society may be regarded approximately as £150, a sum considerably in excess of that carried forward in the last report.

The Committee appointed to investigate the incubation period of certain infectious diseases, having concluded their labours, have sent in a report, which appears to the Council to be of so much value that they have determined to incur the expense of its publication in a separate volume, as was done in the case of the report of the Myxœdema Committee in 1888. At the request of the Council, Dr. Dawson Williams, the Honorary Secretary to the Committee, has kindly consented to see the volume through the press, in order that it may be in the hands of the Members of the Society without unnecessary delay.

TREASURER'S STATEMENT OF ACCOUNTS,

JANUARY 1, 1891, TO APRIL 30, 1892.

	Dr.	£	s.	d.		Cr.	£	s.	d.
1891-2	To balance at Bank, 1st January, 1891 .	113	19	6	1892	By Cost of *Transactions*, Vol. XXIV:			
	„ 405 Subscriptions at 21*s.* . . .	425	5	0		Paper, printing, binding, and delivery	153	8	6
	„ 19 „ received through Bank	19	19	0		Illustrations	61	5	0
	„ 24 Admission fees at £2 2*s.* . . .	50	8	0		„ Meetings:			
	„ Sale of *Transactions*:					Expenses of rooms (Rent, &c.) . .	105	0	0
	By the Publishers . . .	19	3	3		Refreshments	33	8	0
	„ Composition	5	5	0		R. Coldrey, for attendance . . .	7	10	0
	„ Dividends on Consols:					Microscopes	1	7	6
	1891 January . . . £4 0 6					„ Treasurer and Hon. Secretaries:			
	April . . . 4 0 6					Secretarial assistance	26	5	0
	July . . . 4 0 6					Commission to Collector . . .	15	15	0
	October . . . 4 0 6					Printing and Stationery . . .	6	1	0
	1892 January . . . 4 0 6					Petty expenditure	7	10	0
	April . . . 4 0 6						417	10	0
		24	3	0		„ Balance in hand	240	12	9
		£658	2	9			£658	2	9

Examined and found correct, *May* 7, 1892. { SIDNEY PHILLIPS, M.D., W. ARBUTHNOT LANE, M.S., } *Auditors.*

WILLIAM M. ORD, M.D., *Treasurer.*
May 7, 1892.

{ W. B. HADDEN, M.D., WILLIAM H. BENNETT, } *Hon. Secs.*

Amount of Investments in hands of Trustees (Consols) £600.

COMMUNICATIONS.

I.—*Three cases of Neuritis and Spurious Arthritis.*

By T. J. Maclagan, M.D. *Read October* 9, 1891.

STRUCTURAL changes in the joints are occasionally found to occur in association with, and as a sequence of, lesions of nerves and nervous centres. Such joint troubles are usually regarded as a low form of inflammatory mischief resembling rheumatism.

Charcot,* describing them as they occur in connection with brain lesions, says that they are chiefly found in cases of hemiplegia where the paralysis is consequent on encephalitis or brain-softening. Brown-Séquard,† referring to the pain sometimes experienced when paralysed limbs are pressed upon or moved, says that such pains "depend upon a sub-acute inflammation of the muscles or joints which is often mistaken for a rheumatic affection. This sub-inflammation in paralysed limbs is often the result of an irritation of the vaso-motor or nutrition centres of the encephalon." Dr. J. R. Mitchell,‡ as far back as 1831, called attention to the occurrence of joint changes in connection with injuries of the spine. More recently attention has been prominently directed to this subject by his son, Dr. Weir Mitchell,§ who describes the "curious inflammatory states of the joints" which follow injuries to nerves, especially those of the arm. "It is quite clear," he says, "that injuries of the spine, diseases of this organ and of the brain, and wounds or any form of lesions of nerves, are capable of developing in the

* *Lectures on Diseases of the Nervous System.*
† *Lancet*, vol. ii, 1861.
‡ *American Journal of Medical Sciences*, vol. viii.
§ *On Injuries of Nerves.*

joints inflammatory conditions, usually subacute, and which so precisely resemble rheumatic arthritis in their symptoms and results that no clinical skill can discriminate between the two."

My own experience of the joint affection which follows lesions of nerves or nerve-centres would not lead me to endorse Weir Mitchell's view, either as to its inflammatory nature or as to its clinical resemblance to rheumatic inflammation. Let me give the following cases as illustrative examples.

Case 1.—A lady, æt. 60, had an attack of cerebro-spinal meningitis characterised by the occurrence of great pain in the head, high temperature (103° to 105°), muttering delirium, and marked prostration. For a week she was in imminent danger, but ultimately and slowly recovered. I had seen her during the acute stage of her illness, and there was then nothing the matter with her hands or joints; but during convalescence she complained much of pain in the arms, shoulders, and neck, and felt her fingers stiff. These pains were regarded and treated as rheumatic. Two months after their commencement she again came under my notice. Her general health was fairly good, though she was still weak and easily tired. Her chief complaint was of inability to use the hands, and of pain in them, and in the arms, shoulders, and neck. She could not raise the hands to the head, and the shoulder movements were much restricted. The joint was not affected; it could be freely moved by me, but doing so gave pain, not in the joint, but in the structures around. There were tender spots over the scapular and deltoid muscles and down the arm. Pains were worse at night, and she could not sleep without a sedative. The fingers were partially flexed in a claw position, and could be moved only very slightly by voluntary efforts; such efforts caused no pain. By using a little force I could straighten them; this caused much pain. Voluntary efforts to shut the hand were painless but quite ineffectual; forcible efforts by me were more successful, though the hand could not be completely closed; such efforts caused acute pain. The palmar fascia could be felt hard and contracted. The thumb was drawn inwards, and was in a line with the palmar surface of the index finger. The muscles of the thumb and little finger were much wasted. The skin of the hand, and especially of the fingers, was glossy and mottled. The fingers were tapering, and the

whole hand small. Efforts at voluntary movement were painless but ineffectual. All forcible movement caused acute pain. The joint stiffness was most marked in the knuckle-joints. The affected joints were not in the least painful; there was no pain even on pressure, but acute pain on forcible movement: they were not at all swollen. The general wasting of the soft structures of the hand gave, indeed, an appearance of prominence to the knuckle-joints, but measurement showed that these joints were decreased rather than increased in size. The left hand was more affected than the right; its knuckle-joints were stiffer and more painful on forcible movement, but its measurement was less. The circumference of the right hand round the knuckle-joints was 6¾ inches, of the left at the same point 6¼. The left hand might naturally be a little smaller than the right; but had the ailment, which affected the knuckle-joints of both, caused any swelling of these joints, this swelling would have been greater in the hand most affected, and the circumference of the left hand would have been at least as great as that of the less affected right hand.

This was a case of neuritis affecting the nerves of the arms. The joint troubles were secondary to this.

Treatment consisted in keeping up the general health, and in the use of massage, electricity, and thermal baths. Under this treatment she gradually improved. The pains and stiffness completely disappeared from the arms and shoulders. The hands and fingers improved very slowly, but persistent continuance of the local treatment ultimately led, not to their complete restoration, but to the recovery of a sufficiently useful amount of movement in the fingers.

Case 2.—A lady, æt. 62, suffered from a not advanced stage of paralysis agitans. Besides this she complained much of pain down the left arm, extending from the shoulder to the fingers, increased by movement or the jolting of a carriage, and always worse at night. The brachial nerves were tender on pressure, and all round the shoulder and scapular region of the left side there were numerous spots tender to the touch. The left hand was smaller than the right; the circumference of the right at the knuckles was 7 inches, of the left under 6¾. The skin of the right hand was natural in appearance, that of the left was shiny and glossy, and of a mottled red; the fingers were tapering, the muscles of the thumb and little finger wasted,

and the joint movements much impaired. This condition was most marked in the knuckles. By voluntary effort the fingers could not be completely extended, and the hand could not be more than three parts closed; such efforts caused no pain, and there was no pain on pressure over the stiffened joints. Forcible movement caused great pain.

Under treatment the pain disappeared, and the state of the hand improved. The paralysis agitans, of course, continued.

Case 3.—A lady, æt. 25, had in India an attack of kaki followed by multiple neuritis. When she came under my care there was very little sensation in the toes or on the dorsum of either foot; the anterior tibial muscles scarcely responded to the faradic current; both legs were much wasted, and she was quite unable to walk. But it is the state of the arms which chiefly calls for attention. These were wasted, and were the seat of aching pains. The muscles responded feebly to the faradic current, and the parts supplied by both ulnar nerves were almost void of sensation.

The skin of both hands was glossy and mottled, the fingers tapering, and the joints of the knuckles so stiff as to be useless. There was no pain in these joints, and no swelling. Such slight voluntary movement of the fingers as could be accomplished caused no discomfort; forcible movement caused great pain. Even by such movement the hand could not be completely closed. The right hand was rather worse than the left. The circumference of both at the knuckles was 6½ inches. The muscles of the thumb and little finger were much wasted.

After a long course of massage and electricity and two courses of thermal waters she had almost recovered; the muscles regained their tone, she could walk perfectly, and the voluntary movements of the hand and fingers were completely restored. The last thing to disappear was the numbness of the tips of the little fingers.

These three patients all suffered from neuritis affecting the nerves of the arm. In each of them the nerve lesion was followed by changes in the joints—changes which were distinctly a result of the nerve lesion, and were remedied by treatment directed to that lesion. Besides the joint affection

and the pain of the neuritis, it will be observed that the other changes noted were wasting of the muscles of the hand and a glossy state of the skin of the fingers and hand. The condition is the same as that noted by surgeons in connection with injuries of the nerves, and which has been well described by Sir James Paget.* "Glossy fingers," he says, "appear to be a sign of peculiarly impaired nutrition and circulation due to injury of the nerves. They are not observed in all cases of injured nerves, and I cannot tell what are the peculiar conditions of the cases in which they are found; but they are a very notable sign, and are always associated, I think, with distressing and hardly manageable pain and disability. In well-marked cases the fingers which are affected are usually tapering, smooth, hairless, almost void of wrinkles, glossy, pink or ruddy, or blotched as if with permanent chilblains. They are commonly also very painful, especially on motion, and pain often extends from them up the arm. In most of the cases this condition of the fingers is attended with very distinct neuralgia, both in them and in the whole arm, and its relation to disturbance of the nervous condition of the part is, moreover, indicated by its occasional occurrence in cases where neuralgia continues after an attack of shingles affecting the arm." This is the best description on record of the state of the limb observed in surgical lesions of the nerves of the arm. It is a perfect delineation, too, of the appearance presented by the hands in the three cases of neuritis which I have given.

Impaired nutrition consequent on a nerve lesion is the condition with which we have to deal; from this impaired nutrition all the structures of the hand suffer: the muscles waste, the skin loses its natural folds and wrinkles, and becomes thin and glossy; not only do the fingers taper, but the whole hand is diminished in size. All this results not from any local disease in the hand, but from malnutrition consequent on the nerve lesion. The skin and muscles are not the only structures affected; the ligaments and fibrous textures and the bones suffer too. And it is as a consequence of malnutrition affecting these that there is developed the condition of the joint structures, the so-called spurious arthritis, with which we are now dealing.

The fibrous structures of the palm contract, causing obstinate contraction of the fingers, and at the same time narrowing the whole hand by dragging its radial and ulnar

* *Med. Times and Gazette*, vol. i, 1864.

aspects towards each other. Malnutrition and consequent contraction of the fibrous textures are not likely to be confined to those of the palm; they will also affect the ligaments of the joints. Shortening or contraction of these ligaments would materially interfere with joint movements, and such interference would be most notable where movement is naturally most free; hence it is that the stiffness characteristic of this condition is most marked in the joints of the knuckles and fingers. The function of the ligaments is to keep the ends of the bones in their proper place, and to prevent undue movement. Let the ligaments be shortened, and they carry this restraining function to excess, and prevent even natural movements. Forcing a healthy joint to perform more than natural movement gives rise to much pain; the cause of the pain is the straining and stretching of the ligaments. If the ligaments are shortened by disease the natural movements can be performed only by force, and such force causes the same pain as results from the unnatural and forcible movement of a healthy articulation. In spurious arthritis there is pain on forcible movement because such movement stretches and strains the shortened ligaments; there is no pain except on such movement, because there is no disease in the joint structures, nothing to cause pain.

The bones also suffer from the general malnutrition. The fingers are thin and tapering, the size of the affected hand is diminished, and its circumference at the level of the stiffened knuckles is found on measurement to be decreased rather than increased. Malnutrition and diminished size of the articular ends of the bones must materially interfere with the functional activity of the joints formed by them. In combination with the contraction of the ligaments the condition of spurious arthritis is produced with which we are now dealing.

So far as their clinical features are concerned it is evident that there is not much resemblance between the joint inflammation which is met with in rheumatism and the joint troubles which follow nerve lesions, and that there can be no difficulty in discriminating between the two.

Rheumatic Inflammation.	*Spurious Arthritis.*
1. Rheumatic inflammation affects chiefly the large joints.	1. Spurious arthritis affects chiefly the small joints of the hand.
2. The evidence of inflammation is distinct.	2. In spurious arthritis there is no inflammation.

Rheumatic Inflammation.	*Spurious Arthritis.*
3. In rheumatism constant pain in the affected joint is the leading feature of the disease.	3. In spurious arthritis there is no pain in the joints except on forcible movement.
4. In rheumatic inflammation there is swelling of the affected joint.	4. In spurious arthritis there is not only no swelling, but the joint may even be diminished in size.
5. Rheumatic inflammation speedily subsides, and the joint soon returns to its normal state.	5. In spurious arthritis the joint is brought back to its normal condition slowly and with much difficulty.
6. When stiffness occurs in connection with rheumatic inflammation it is generally as a remote result of repeated attacks.	6. In spurious arthritis stiffness is the first thing complained of, and it remains the leading feature.
7. In rheumatic inflammation there are no nerve symptoms, and no evidence of any disturbance antecedent to the rheumatism.	7. Spurious arthritis is a sequence of a nerve lesion of some kind.

Their natural histories, too, are quite distinct. Spurious arthritis comes on as a tardy sequence of a nerve lesion, and, like the changes in the skin and muscles, is due to malnutrition resulting from that lesion. Rheumatic arthritis essentially consists in inflammation, more or less acute, of the fibro-serous structures. Notwithstanding these marked points of difference some observers have tried to trace a resemblance between the two, and have even gone so far as, on a very slender foundation, to construct a theory as to the neurotic origin of acute rheumatism.

If left to itself acute rheumatism may run on for four or five weeks, during which time most of the large joints of the body, and possibly the heart, may be the seat of inflammation more or less severe; the patient suffers acute pain, and fever continues during the whole time; and yet, as a rule, there is at no time any symptom which a clinical observer would attribute to disturbance of nerve-centres. I ask any unprejudiced or unbiassed mind, is it reasonable to suppose, nay, is it not unreasonable to ask us to believe, that a lesion of the nervous centres could cause all this serious disturbance of the system and of important organs, and keep it up for weeks, not unfrequently producing death by such disturbance—is it reasonable to suppose that a lesion of nerve-centres could do all this, and yet not cause a single symptom directly referable to these centres, or leave behind any trace of its existence? In spurious arthritis, with a joint trouble not to be compared in severity with that noted in acute rheumatism, there is, both before the arthritic trouble appears and during its con-

tinuance, very distinct evidence of the existence of a nerve lesion. Of all acute febrile ailments acute rheumatism is indeed the one in which the nervous centres give least evidence of disturbance. As Arnozan has remarked, "before pronouncing the articular lesions of rheumatism to be dependent on lesions of nerve-centres we must first show that these centres are really affected" (Arnozan, *Des Lésions trophiques consécutives aux Maladies du Système nerveux*, p. 110, Paris, 1880).

On one very important point in connection with spurious arthritis I would especially insist—by patient persistence in treatment the joints can be in some cases quite restored to their normal state.

II.—*Two cases of Disease of the Vesiculæ Seminales (Chronic Vesiculitis).* By Alfred Parkin, M.D., M.S. *Read October* 9, 1891.

AFFECTIONS of the vesiculæ seminales, though probably not uncommon, are so seldom spoken of that it seems worth while to put the two following cases on record. They are interesting partly from the point of view of diagnosis, and partly on account of the symptoms.

A. W. A., æt. 33, came under my care in August, 1890, complaining of severe pain in the left groin, shooting down into the testicle of the same side. Eighteen months previously he had had an attack of gonorrhœa, followed by a painful very large swelling of the right testicle. An abscess formed and burst, leaving a small opening on the right side of the scrotum.

On examination of the right testicle there was found to be a nodular swelling in the globus minor, connected by a band of thickened tissue with a sinus opening on the surface of the scrotum, said to discharge a little pus occasionally.

No thickening of the cord or of the globus major was perceptible.

The left testicle and cord appeared healthy, the body of the testis being a little flabbier and smaller than that of the right.

The pain complained of was referred to the left testicle and upwards along the course of the cord; it was so severe as to interfere considerably with walking or any other active exercise, and was generally of a dull aching character with occasional sharp aggravations.

Per rectum above the prostate, which was of normal size, there could be felt an elongated somewhat irregular mass in the situation of the left vesicula seminalis. It was not hard or nodular, and gave the impression of being a seminal vesicle distended with fluid. This enlargement could be very readily made out by manipulation between a sound in the bladder and a finger in the rectum. The right vesicle could only just be felt.

The patient had no vesical irritability or pain in the penis; he, however, complained much of seminal emissions, which occurred once or twice a week. He noticed that the pain

complained of was considerably relieved by an emission. The urine was clear, without deposit, and did not contain any albumen.

T. P., æt. 28. Admitted into Guy's Hospital under the care of Mr. Howse, who has kindly given me permission to publish the case.

Nine years ago the patient had an attack of gonorrhœa which lasted nine months; a year ago he had a second attack.

On admission the symptoms were mainly referable to a stricture of the urethra which admitted only a No. 4 catheter; it was for this that he came under treatment. There is a nodular mass in the right epididymis occupying the globus minor and globus major; the globus minor is connected to the scrotum at a point where there is a sinus, and close to this are the marks of two old sinuses which have healed. The right cord feels healthy. On the left side there is a smaller mass in the globus minor, also connected with the overlying skin and opening by one sinus. Extending up from this the vas deferens can be felt as an enlarged rounded cord, the thickening extending upwards as far as the cord can be traced.

Per rectum an irregular hard mass can be felt in the situation of the left vesicula seminalis and vas deferens, not tender to touch, and apparently too hard to contain much fluid. The right vesicle can only just be felt. Pressure on the mass on the left side of base of bladder causes an intense desire to micturate, but this is probably due to the condition of the bladder being one of chronic cystitis. The urine was albuminous, and contained a quantity of pus.

During the time the patient has been under observation (three months) there has been little change in the condition of the testes or seminal vesicles; if anything, the nodules spoken of have become a little smaller. There is no family history of phthisis, no loss of flesh or night sweats, and no evidence of tubercular disease in other organs.

Both these cases are examples of chronic inflammatory disease of the seminal vesicles, analogous in many respects to the chronic salpingitis and matted appendages met with in the female. In the second case the nodular swelling at the base of the bladder was in all probability the matted vesicle and vas deferens.

The primary cause was in both instances an attack of gonorrhœa, which very probably gave rise to an acute vesiculitis. I may mention that I have had recently brought under my notice a case of acute vesiculitis following gonorrhœa associated with acute prostatitis; the large tender swelling extending upwards and outwards from the enlarged prostate was very distinct, but the symptoms were obscured by those of the prostatitis. Such cases are probably by no means rare.

The most obvious symptom in the first of the chronic cases was the severe neuralgia of the testicle, due apparently to closure of the common ejaculatory duct with retention behind the obstruction, giving rise to the cystic swelling of the vesicula. That the obstruction was probably not complete seems evidenced by the periodical seminal emissions, which relieved the pain considerably, and by certain variations in size which were noticed in the swelling at different periods.

The pain has resisted all local treatment, and may ultimately demand relief by castration, as the patient appears to be in danger of being reduced by it to a condition of sexual hypochondriasis. This case certainly suggests that an examination of the structures at the base of the bladder should be made in those persons with severe neuralgia of the testis not due to any obvious cause.

The difficulty in diagnosis may in some cases be very great. There can be seldom any trouble in acute vesicular disease, and a rectal examination will remove all doubt; but in chronic cases, especially when associated with chronic epididymitis, it is difficult at first to exclude tubercular affections, for there may be marked thickening of the vas deferens in each disease associated with nodular thickenings of the epididymis and scrotal sinuses. In the second case this difficulty was increased by the presence of cystitis due to a stricture of the urethra.

Some help may be obtained from the fact that a tubercular vas deferens is thickened very irregularly, whilst a vas thickened by chronic ascending inflammation presents a uniform increase of size that appears to be characteristic.

Both the patients presented somewhat similar local appearances, but having been watched now for over four months with gradual improvement rather than increase in size of the nodules, it does not appear at all likely that the disease can be tubercular. It must, however, be borne in

mind that tubercle bacilli may at any time find a growing-ground in chronic inflammatory products. The points which help in the diagnosis from tubercle of the same organs are apparently the onset of the disease in an acute attack following gonorrhœa; absence of caseation in the nodules of the epididymis, with often closure of the sinuses; want of progressive tubercular infection, and gradual improvement under treatment.

I may mention that in the case of the distended vesicula it did not appear to me that aspiration would be likely to do good, as such treatment is only palliative; besides that I had reason to believe that the obstruction was not complete.

III.—*Two cases of Compound Fracture of the Skull, in which the fragments were carefully replaced* in situ *and became firmly reunited.* By W. Bruce Clarke, M.B., F.R.C.S. *Read October* 9, 1891.

Case 1.—J. N., æt. 22, was admitted to St. Bartholomew's Hospital with a severe compound fracture of the frontal bone. He was a plate-layer on the Metropolitan Railway, and was caught by the buffer of an engine and knocked down.

He was quite conscious when admitted, but somewhat pale and collapsed. His pulse was slow and weak, but the pupils were unaffected, and there was no paralysis. There was a wound on the upper part of the forehead, and extending a little distance up under the hair about 3 inches by 4, and a very evident depressed fracture of the frontal bone. There were two smaller cuts, one over the left eye, the eyelid of which was completely divided, and another on the chin.

The patient was taken into the operating theatre and placed under the influence of chloroform, after which the head was completely shaved, and the dirt as far as possible removed by several washings with a nail-brush and soft soap, which was freely applied to the inside of the wound. The edges were then turned back and thoroughly examined, every bit of dirt being carefully picked out, and where this seemed to be impossible the stained tissues were cut away with scissors. By this time it was quite clear that the fracture was far more extensive than it had at first sight appeared to be. It was now seen to cover an area about 1 inch by 2. Dirt and grease were so driven in between the fragments of fractured bone that it was impossible to cleanse them without removal. Six large fragments besides some smaller ones were therefore elevated and picked out. The surface of the dura mater was found to be covered in places with grit and grease, and was duly cleansed. Beyond two or three small punctures there was no wound in it. The pieces of bone were scraped with a chisel to free them from dirt, and placed in warm perchloride and water, 1 in 3000, until the whole wound had been once more thoroughly cleansed, once with water and subsequently with perchloride lotion, 1 in 2000. After this the bits of bone were carefully replaced, each in its exact original situation, and some force had to be employed to press them down to their proper level and wedge them

together firmly. Every fragment was replaced except, perhaps, two or three insignificant pieces that were lost. After all the vessels had been securely twisted the edges of the flaps were brought together with silk sutures. An iodoform pad and some blue wool completed the dressing, after which very firm pressure was applied with a capelline bandage.

The patient passed an excellent night, and the next morning his pulse was 88, the temperature 99·6°.

On the 19th, *i. e.* forty-eight hours after admission, the temperature rose to 100·2°, and the wound was dressed. It was perfectly free from pain, and there was no suppuration. It had practically healed. The stitches were all removed, and the wound was done up in a permanent dressing.

July 26.—The wound was again dressed, and was found to be firmly healed. The temperature had not risen to 100° since the last dressing.

The next day the patient was allowed to get up, and on August 2 (sixteen days after the accident) he left the hospital, feeling perfectly well. There was at this time no pain except when very firm pressure was exerted over the site of the fracture.

In less than four weeks he returned to his work as a platelayer, feeling none the worse for his accident, and has been regularly at work ever since. At the present time (October, 1891) the bones appear to be firmly united. There is no pain on firm pressure.

Case 2.—E. B., æt. 7, was admitted on September 5, 1890, with a compound fracture of her left parietal bone, which had been caused by a flower-pot which her mother had accidentally dropped on her head from a third-floor window. She was rendered unconscious, and was in this state brought to St. Bartholomew's Hospital, but she shortly afterwards recovered consciousness. There was a cut over the left parietal bone about an inch and a half in length, and the subjacent bone could be clearly seen to be considerably depressed.

After the head had been shaved and the wound opened up, the fragments were seen to be driven in over an area about an inch and a half in diameter. In the centre of the fracture it was depressed to the extent of fully half an inch. The fragments were so closely jammed together that it was quite impossible to elevate them without making some small hole for the introduction of an elevator. Not wishing, how-

over, to damage the cranial vault by so large a hole as that which would be made even by a small trephine, I chiselled away a little piece of the outer table of the skull just at the edge of the fracture, and managed with the elevator to dislodge one fragment, after which the others readily followed suit. They were carefully cleaned as in the previous case, and set aside till the dirt had been completely removed from the edges of the wound by washing and scissors. There was a tear in the dura mater about an inch long, which was sutured with fine silk, after which the fragments of bone were exactly fitted together and pushed back into their places. Eventually they were got to fit so close that even the chisel cut was hardly perceptible. The edges of the skin were accurately adjusted and firm pressure applied. No drain.

September 6.—Patient vomited. Temp. 100·2°.

September 7.—Vomited three times. Temp. 99·5°.

September 11.—Dressed for the first time. A good deal of œdema in the surrounding parts, and a drop or two of pus, which was squeezed out.

September 12.—A drain inserted, which was discontinued four days later.

September 23.—Swelling all gone; wound healed.

October 1.—Discharged quite well.

October 9, 1891.—At the present time the patient is perfectly well, and the bones are firmly united.

I have thought it worth while to put these two cases on record, because, so far as I have been able to ascertain, no similar results have ever been obtained.

Attempts have been made to reintroduce the circlets of bone which have been removed by the trephine, but usually, I believe, invariably without success. Some few years ago I made the attempt myself, and though the wound united and the patient eventually made a good recovery, suppuration ensued in less than a fortnight, and the piece of loose bone came away as a sequestrum, after which the wound healed up permanently.

A large series of experiments were made some few years back on the lower animals by Merren and Walther, and were published by them in a work entitled *Des greffes osseuses: traité expérimentale et clinicale de la régénération de l'os* (compare tom. i, p. 429). But the success which they obtained in animals was not followed up by success in the case of the human skull.

Ollier (*Archives de Physiol. normale et pathologique*, Paris,

1889, p. 166) refers to their labours in this direction, but states that he has never succeeded in making a piece of bone which has been removed from the human skull reunite with the surrounding bones. After one of his attempts in this direction meningo-myelitis followed, and he does not appear to have repeated it. Indeed, he goes so far as to imply, even if he does not state it in so many words, that the risk of the procedure is so great as to render it unjustifiable, more especially as, if the pericranium is carefully replaced, bone grows round at the edges of the trephine hole, and a dense membrane towards the middle. It can, however, hardly be a matter of doubt that a complete bony vault to the skull is far better than a membranous one, and with complete asepsis the plan does not seem to be fraught with danger. From what I have seen in other compound fractures, I am inclined to think that in the accurate fitting together of the fragments lies the key-note of success.

P.S. (October 7, 1891).—Since writing the above I have had another successful case, which was treated in a precisely similar manner.

IV.—*A case of Gastrostomy, with especial reference to an experimental Investigation of the Movements and of the Contents of the Stomach.* By H. Handford, M.D. *Read October* 23, 1891.

THE following case presents some points of interest in the course and progress of the stricture, and in the striking relief afforded by cocain. But it is chiefly of value on account of the very successful result of the operation, and the long survival of the patient. This enabled me to investigate by means of an india-rubber balloon passed through the gastrostomy wound both the proper and the communicated movements of the stomach. The remarkably good state of nutrition of the patient, maintained so long on a fluid diet, determined me to examine the contents of the stomach at varying periods after meals of different composition. And although nothing very striking or unexpected has resulted I have thought the facts worthy of record.

Case.—J. P., æt. 53, an army pensioner, was admitted into the General Hospital, Nottingham, under my care on September 7, 1889, complaining of cough, and of difficulty and pain in swallowing. He had malarial fever in India, syphilis twenty-six years ago, and had used alcohol rather freely. He used to weigh 11 st. 6 lbs., but now only 8 st. 12 lbs.

His present illness began two months before admission with loss of flesh and gradually increasing difficulty in swallowing. He could take ordinary food without having the meat minced, but experienced pain behind the lower part of the sternum on swallowing. A few weeks later this pain was felt always in the fourth right intercostal space, beginning from the right edge of the sternum and passing straight outwards to the right nipple. He had no pain in the back, or sickness, or regurgitation of food. There was considerable emphysema and slight bronchitis. The heart dulness was gone, and the liver was pushed down. The vessels were atheromatous. The heart-sounds were weak even at the base. The percussion note of the chest was good everywhere except at the angle of the left scapula, but the movement of air

seemed very imperfect, and the entry deficient over much of the left side.

The largest sized olivary bougie (head ½ inch in diameter) was passed on September 11 and 12 without the slightest difficulty for 21¾ inches from the dental arch. The bougie hitched slightly at the cricoid cartilage during withdrawal, but there was no other trouble. After this his pain and difficulty in swallowing disappeared; he rapidly gained weight and went home. It was thought he might have either an ordinary œsophageal stricture commencing, or a mediastinal growth pressing on the œsophagus and partially occluding the left bronchus; but his very rapid and striking improvement and gain in weight seemed equally against both hypotheses.

On January 24, 1890, he was readmitted. He had remained fairly well till five weeks previously, when the pain in swallowing returned. The entry of air was still very poor on the left side, but there was no very obvious dulness. On auscultating at the third, fifth, and eighth dorsal spines the swallowing of milk produced only *one* sound. A small-sized olivary bougie passed readily for 13½ inches from the dental arch, and then came to an abrupt stop. A Symonds tube the size of a No. 9 catheter could not be passed through the stricture. He was unable to swallow any solid food. He was ordered cocain lozenges (gr. $\frac{1}{6}$ in each) several times a day, and was directed to allow them to melt in the œsophagus. In a very few days a small bougie could be passed. He could take minced meat without difficulty, and had lost the pain on the right side of the chest on swallowing. He gained weight and went home, declining to have any operation performed until he became worse.

On May 24, 1890, he was readmitted in a prostrate condition; he was unable to walk upstairs, the stricture having become so much tighter that he had been unable for more than forty-eight hours to swallow even water. His thirst was relieved by enemata of water and beef tea, and the first stage of the operation of gastrostomy was performed on the afternoon of his admission by my surgical colleague, Mr. H. O. Taylor. The stomach was opened on the third day. After that for two or three weeks he was fed partly by the stomach and partly by nutrient enemata. His progress was uninterrupted. On admission he was too ill to be weighed, but on June 16, when he had gained ground considerably, his weight was 7 st. 9 lbs., and on leaving the hospital September 20 he

had reached 8 st. 10 lbs., a gain of 15 lbs. The week before he had been 8 st. 11½ lbs., making the greatest gain 16½ lbs. His digestion was quite free from pain, discomfort, or flatulence. The bowels acted once daily without aperients. Food was introduced by means of a funnel attached by india-rubber tubing to a glass (and later a metal) tube $\frac{1}{16}$ inch in outside diameter. One and a half to two pints could be given in from half a minute to three minutes. This, and the innumerable instances of forced feeding of the insane by the stomach-tube, show that the rapid introduction of large quantities of food into the stomach, the absence of saliva and of its intimate admixture with the food, the absence of pleasure in eating and of the perception of flavours, are not incompatible with very perfect digestion and active nutrition. It is, however, probable that the same quantity of food in a healthy person and taken in the ordinary way would have resulted in a larger and more rapid increase of weight.

The introduction of food into the stomach caused a free flow of saliva, which was swallowed, and regurgitated at intervals five or six times during the day. The quantity collected at first averaged 16 oz. in the twenty-four hours, but some was generally lost. A few weeks later the quantity averaged 8 oz. The regurgitated saliva was tested with arrowroot, and found to be functionally quite active.

He had some cough, which was relieved by occasional teaspoonful doses of a cough linctus containing morphia. It is probable that some of this was absorbed from the œsophagus, as any attempt to swallow water in quantities greater than about one teaspoonful resulted in immediate regurgitation. Whether there was any trickling of fluid at all through the stricture was never positively ascertained. If so, it must have been extremely limited in amount. As his nutrition was so good, and he did not complain of the want of tasting his food, he did not masticate it before it was introduced into the stomach.

His meals were—

A. 4 A.M., milk, 1½ pints; 1 egg.

B. 7 A.M., milk, 1 pint; bread crumb, 6 oz.

C. 10 A.M., beef tea, 1½ pints; uncooked pounded meat, 4 oz.; lactopeptine, gr. x (afterwards omitted).

D. 2 P.M., milk, 1½ pints; cream, 5 oz.; 1 egg; brandy, ½ oz.

E. 6 P.M., beef tea, 1 pint; bread crumb, 6 oz.

F. 10.30 P.M., milk, 1½ pints; 1 egg; brandy, ½ oz.

This makes a total of—

Milk, 5½ pints; cream, 5 oz.; beef tea, 2½ pints; bread crumb, 12 oz.; eggs, 3; lean meat, 4 oz.; brandy, 1 oz.

Total quantity of fluid rather more than 8½ pints.

This is a very large quantity of food, and it is a matter of surprise that a man of fifty-four, in bad health, and taking no exercise beyond walking in the hospital garden, could digest it. But, with the exception of a feeling of dragging at the site of the adhesion to the abdominal wall, he never complained of pain. He had a clean tongue, a good appetite, and was always ready for the food to be put into his stomach. The craving for solid food which was so insatiable before the operation was completely relieved. Only the week before he went out did he complain of symptoms of indigestion, which took the form of pain under the right scapula, and was relieved by a rhubarb pill introduced into the stomach on two successive days. He then asked for the meal at 4 A.M. to be omitted, as he did not like being disturbed during the night.

On August 29, 1890, I introduced into the stomach, in a collapsed condition, a small india-rubber balloon attached to a silver female catheter, and, by means of india-rubber tubing, to a Marey's tambour and a revolving clockwork drum (kindly lent me by Dr. W. B. Ransom). Through a T-piece the balloon could be blown up inside the stomach, without removing the tubing, till it became 2 to 3 inches in diameter. Any movements then communicated to the balloon were recorded by the lever of the Marey's tambour on the smoked paper of the revolving drum. The experiments were continued in all for about one hour on each of two separate afternoons, and during the whole of that time no evidence whatever could be obtained of contractions of the stomach wall, although even very slight movements of other kinds were readily recorded. Of course it is probable that the adhesions of the stomach to the abdominal parietes may account for the absence of peristaltic movements. On the first occasion the balloon was introduced about six hours after meal C, and on the second immediately after meal D. The balloon caused no pain or discomfort, but as it had no curative effect the patient was a little unwilling for the experiment to be again repeated, although he was immensely interested on the first occasion to see "his pulse taken through his stomach."

The accompanying papers show two series of curves, the respiratory and the cardiac; and it is evident that both the

diaphragm and the heart must have considerable influence in preventing stagnation of the fluid contents of the stomach.

Tracings.—With the stomach empty six hours after a meal, the communicated heart movements were shown best with the patient in the reclining or semi-recumbent position, and were least marked in the erect. The heart's impulse was better shown when lying on the left side than on the right.

With the stomach full, immediately after 1½ pints of beef tea, the best tracings of the heart-beat were obtained in the erect position, and in all positions the two best marked beats were always those at the end of expiration. The differences shown in the tracing when the patient was lying on the right side and on the left were not so great as when the stomach was empty. When stooping forwards the respiratory curve was very high, and the cardiac beats were scarcely shown except at the end of expiration. In the prone position the respiratory curve was moderate, and the cardiac beats scarcely indicated at all.

This affords another proof, if one were needed, of the extreme mobility of the heart; and of the great variability, according to the position of the body, in the degree to which the impulse of the heart is communicated to and its weight supported by the adjacent organs.

Portions of the gastric contents were removed from time to time through the fistula, and the following tests were applied. The acidity was determined by a 10 per cent. standard alkaline solution, phenylene diamene being used as the indicator. Hydrochloric acid was determined by Günzburg's reagent (phloroglucin vanillin solution), by Congo-red papers, and by the gentian-violet reaction. Lactic acid was separated by ether, the ether evaporated, the lactic acid dissolved in distilled water, and tested with solution of perchloride of iron. Sugar was tested for with Fehling's solution. The quantity of fluid was generally small, and it was difficult to apply many tests to the same sample. Otherwise other confirmatory tests would have been desirable, especially for lactic acid and sugar. The degree of total acidity was always tested first and most carefully; and in many instances the tests were repeated, and the results very closely approximated.

TABLE.

	Fluid removed from stomach ½ hour after each meal. Sept. 1 and 2, 1890.				Fluid removed from stomach 1 hour after each meal. Sept. 3				Fluid removed from stomach 1½ hours after each meal. Sept. 8.				Fluid removed from stomach 2 hours after each meal. Sept. 13.				Fluid removed from stomach 3 hours after each meal. Sept. 18.			
	Total acidity per cent.	Hydrochloric acid.	Lactic acid.	Sugar.	Total acidity per cent.	Hydrochloric acid.	Lactic acid.	Sugar.	Total acidity per cent.	Hydrochloric acid.	Lactic acid.	Sugar.	Total acidity per cent.	Hydrochloric acid.	Lactic acid.	Sugar.	Total acidity per cent.	Hydrochloric acid.	Lactic acid.	Sugar.
A	·0675	—	×	×	·12	—	×	×	Not enough to test	—	×	×								
B	·04	—	× ×	× ×	·14	—	× ?	2·5 p.c. (11¼ grains per oz.)	·36	—	×	× ×	·23	—	×	—	Not enough	× ×	Not enough	—
C	·1175	—	?	—	·24	—	×	—	·3	—	× × ×	—	·52	—	× ×	—	·63	× ×	Not enough	—
D	·08	—	×	× ×	·192	—	×	×	·12	—	Not enough	× ×	Not enough	Trace	? —	—	·48	× ×	Trace	—
E	·1375	—	× ×	*·25 p.c. or more than 1 grain per oz.	·16	—	×	*·25 p.c. or more than 1 grain per oz.	·29	—	Not enough	?	·4	× ×	×	—	Not enough	× ×	Trace	—
F	·0625	—	× ×	× ×	†Not enough	—	—		·15	—	Not enough	?								

* On both these occasions the meal consisted only of beef tea and bread, and yet sugar was abundant, although, so far as is known, no ptyalin or diastase was present. Of course it is possible that a little saliva may have trickled through the stricture; but if so the quantity must have been extremely small, as from 8 to 16 oz. of saliva were being regurgitated from the œsophagus daily.

† On this occasion the milk was pancreatised; absorption had evidently been more rapid, and the fluid was a thick custard. There was not enough to determine the acidity.

The letters A, B, &c., indicate the time and composition of the meals, as shown on page 19.

The signs — mean absent; × present but unmeasured; × × abundant.

The chief results shown by the foregoing table are—

1. The absence of hydrochloric acid till two hours or later after a meal.

2. The presence of lactic acid in abundance so early as half an hour after taking a full meal.

3. The lactic acid appeared to be most abundantly and quickly produced from bread and from beef tea, less quickly from milk. The highest total acidity was always (with one exception) met with after the meat meal.

4. The total acidity per cent. steadily increased from half an hour up to three hours after a meal. But it appeared, from the thick consistence of the fluid, that the quantity of fluid in the stomach after two hours was very small. Consequently, although the percentage of acid was high, the absolute quantity might be less than at an earlier stage. This is of importance in estimating the quantity of alkali required for neutralisation. But I have found in another case so large a quantity as 16 oz. of fluid vomited five hours after a meal, and having a degree of acidity of ·6 per cent. This is equivalent to 42 grains of oxalic acid, and would require 78·4 grains of bicarbonate of soda to effect neutralisation—a very much larger dose than is usually given.

5. The high degree of acidity about three hours after a meal was chiefly due to the hydrochloric acid.

6. The sugar all disappeared within two hours after food was taken. It was formed in abundance both from milk and from bread. In the latter case, so far as is known, no ptyalin or diastase was present. It is worthy of further investigation, therefore, whether starch may not be changed into dextrin and grape sugar under the influence of micro-organisms and the body temperature.

On one occasion a small quantity of clear fluid was removed when the stomach was at rest five and a half hours after a light meal of milk, one and a half pints, and one egg, and was found to be strongly acid. The quantity was too small to determine the percentage.

On two occasions the contents of the stomach were examined microscopically three and a half hours after a meal of beef tea, one and a half pints, and uncooked meat, 4 oz. Very numerous bundles of radiating acicular crystals were seen. They were probably fat crystals. They disappeared on the addition of ether, and were not found after meals not containing meat. It is possible they may have been tyrosin.

Cover-glass preparations were on several occasions stained

and examined for micro-organisms. Neither sarcinæ nor yeasts were ever found, and other micro-organisms were not numerous. They consisted chiefly of scattered rod-shaped bacteria resembling *Bacterium termo*, of streptococci, and a few zoogloea masses of micrococci.

He became an out-patient on Septemper 20, 1890. In the latter part of October his cough became much more troublesome, and led to a hernia-like protrusion of the mucous membrane of the stomach through the fistulous opening, forming a red mushroom-shaped insensitive mass, nearly 2 inches in diameter. This he could not replace himself, but it was easily reduced for him, though it constantly recurred. The result was that the opening became sufficiently dilated to admit the index finger, and consequently there was considerable leakage of the stomach contents. In the beginning of November he suffered a very profuse hæmoptysis, and from that date he coughed up a large amount of foul-smelling purulent material. He gradually sank, and died on the morning of December 3, having survived the operation of gastrostomy 193 days. Total duration of symptoms seventeen months.

At the necropsy, twelve hours post mortem, a stricture was found in the œsophagus, commencing 5½ inches from the upper border of the cricoid cartilage, extending downwards for 3 inches, and terminating 2½ inches above the cardiac orifice of the stomach. The stricture was very tight, only admitting a fine probe with difficulty. When the œsophagus was laid open the inner surface of the stricture was seen to be extensively ulcerated. The arch of the aorta was adherent to the tumour. The growth had extended by continuity into the left lung, which presented the naked-eye appearance of a chronic grey pneumonic consolidation, but was of almost cartilaginous hardness. The lumen of the main bronchi on the left side was occluded to more than half their diameter by the spread of the new growth along them in the mucous lining. Several of the main branches of the pulmonary artery, going to the upper lobe of the left lung, were greatly diminished in size by pressure while passing through the growth at the root of the lung. The condition of the bronchial arteries could not be readily traced in the irregular sloughing mass at the root of the lung, but it is difficult to imagine that they could have escaped the effects of the pressure which was so evident in the case of the pulmonary arteries. The diminished vascular supply appeared to be the chief cause of the destruction of nearly the whole of the upper lobe of the left lung, which had

become one huge cavity. The right lung was emphysematous. The heart was healthy, and weighed 10½ oz. The stomach was of about the average size, and the mucous membrane looked quite healthy. The opening into the stomach was made at a spot on the anterior surface close to the greater curvature, and at the junction of the right two fifths with the left three fifths. The pylorus seemed large, hard, and hypertrophied. Its canal admitted the index finger with difficulty. It presented no definite appearances of cancer. All the other viscera were examined, but no other secondary growths were found beyond the extension into the lung.

The microscopic examination of the growth in the œsophagus showed a very evident carcinomatous structure. There was a well-marked stroma, the cells were of the squamous epithelial type, and there were numerous cell nests. In the lung tissue the appearances were less typical. The new growth took the form of a diffuse infiltration, and the general carcinomatous structure was masked by the arrangement of the air-cells. The alveolar walls were greatly thickened, and the air spaces more or less filled with epithelial cells and round-cells, together with connective tissue and spindle-cells. In some areas the air-cells were quite obliterated. There was no appearance of fibrin, blood-corpuscles, caseation, or other form of degeneration to indicate that the condition had arisen out of a septic, a croupous, or a catarrhal pneumonia. It was more like a malignant interstitial pneumonia. The character of this growth and the record of deficient entry of air into the left lung so long ago as September, 1889, make it possible that this was a primary tumour.

Conclusions.

Food is moved about in the stomach largely by the movements of the diaphragm and of the heart.

Digestion can take place efficiently in the complete absence of peristaltic movements of the stomach itself.

A considerable gain in weight is not incompatible with the presence of advanced and necessarily fatal malignant disease.

A fluid diet can be maintained for months, and in very large amount, without producing "indigestion."

The *rapid* introduction of large quantities of food into the stomach, the absence of saliva, and of its intimate admixture

with the food, the absence of pleasure in eating, and of the perception of flavours, are not incompatible with very perfect digestion and active nutrition. It is evident that, given a suitable kind of food, fine division of it is the most important circumstance which determines rapid and easy digestion.

Hydrochloric acid was absent till two hours or later after a meal.

Lactic acid was present in abundance so early as half an hour after taking a full meal.

Lactic acid appeared to be most abundantly and quickly produced from bread and from beef tea, less quickly from milk. The highest total acidity was almost always after the meat meal.

The total acidity per cent. steadily increased from half an hour up to three hours after a meal, when it reached ·63, and was chiefly due to hydrochloric acid; but then the absolute quantity of fluid was small. This is of importance in estimating the quantity of alkali required for neutralisation. The sugar all disappeared within two hours after food was taken. It was formed from beef tea and bread, when, so far as could be learnt, no ptyalin or diastase was present. It is a question, therefore, whether starch may not be changed into dextrin and grape sugar under the influence of micro-organisms and the body temperature.

Diagrams illustrating Dr. Handford's Case of Gastrostomy.

Fig. 1.

Tracing taken 4.30 P.M. Last meal 10.30 A.M., stomach therefore empty. Position reclining. Aug. 28, 1890. The tracing shows three and a half respiratory curves, on each of which are four cardiac curves with, in the best marked ones, three minor curves on the top. The cardiac curves are best marked in expiration.

Fig. 2.

Same date and circumstances. Position sitting. The respiratory curve is hardly traceable, and the cardiac curves have lost the minor ones.

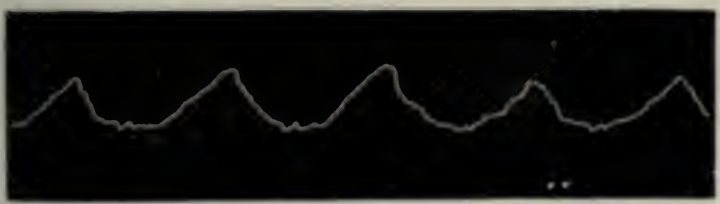
Fig. 3.

Tracing taken immediately after the introduction of a pint and a half of beef tea into the stomach. Position reclining. Aug. 29, 1890. Respiratory curve well marked. Cardiac curves slight.

Fig. 4.

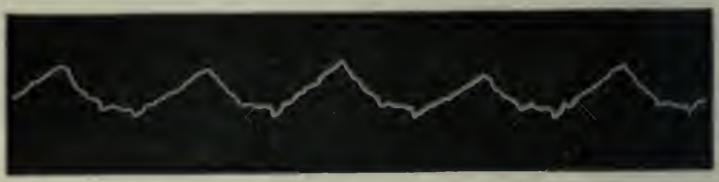
Same date and circumstances. Position sitting. Cardiac curves well marked during expiration.

Fig. 5.



Same date and circumstances. Position supine. Cardiac curves shown only during expiration, and then very feeble.

Fig. 6.

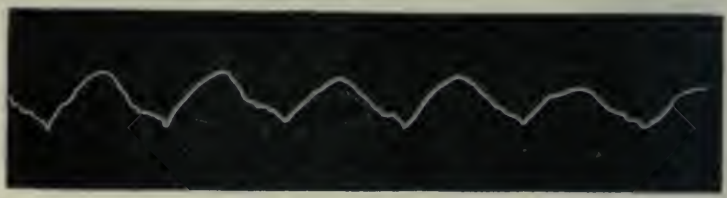


Position lying on the left side.

Fig. 7.

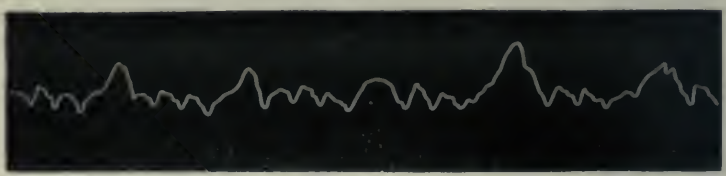
Position lying on the right side.

Fig. 8.



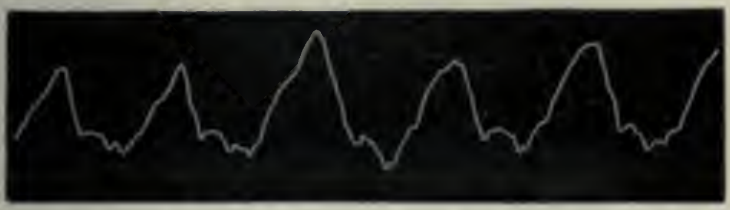
Position prone.

Fig. 9.



Position standing. Respiratory curve small and imperfectly shown. Cardiac curves well marked during expiration.

Fig. 10.



Position stooping forwards. Respiratory curve very well marked. Cardiac curve shown only during expiration.

The drum revolved in one and a half minutes. The speed of the patient's pulse was 80 beats per minute, and of his respiration 20.

V.—*Eleven cases of Compression Paraplegia treated by Laminectomy.* By W. Arbuthnot Lane, M.S. *Read October* 23, 1891.

CASE 1.—E. C., æt. 4½ years, was admitted into Guy's under my care on August 28, 1890. When three and a half years old she had a severe fall, after which she complained constantly of pain in the back and abdomen.

About two months after the accident an angular curve was observed. Paraplegia appeared a month before admission, and apparently became complete in four days.

On admission the fifth dorsal spine was found to form the summit of the curve.

The knee-jerks were exaggerated, and ankle-clonus was well marked. The abrupt onset of the paraplegia led me to suspect that the cord was compressed by the wall of an abscess, but as the child was very feeble and the parents objected to an operation, I did not interfere at once. She remained in the hospital till September 5, during which time her general condition improved and she regained some power over her right leg. She was sent out, the mother being given full directions to keep her in the horizontal posture.

I saw her again on December 10, found that she had less power in her legs, and that she suffered from incontinence of urine. The parents then consented to an operation.

Sensation appeared to be but slightly impaired.

On December 31 the laminæ of the fourth, fifth, and sixth dorsal vertebræ were removed, and the dura mater was exposed. Displacing the cord backwarks and compressing it against the laminæ was a tense abscess-wall, which extended over the bodies of these vertebræ. The abscess extended deeply into the bodies of these vertebræ, and contained much pus and particles of necrosed bone. It was thoroughly cleared, filled with iodoform and glycerine, and a metal drain inserted through a channel cut between the transverse processes.

Nothing could have been more satisfactory than the progress of the case after the operation. On January 5 the child

was given a small dose of compound liquorice powder. Towards the early morning she passed two small motions containing blood, and the nurse noticed for the first time that she was very blanched. I saw her early in the morning, and found her suffering evidently from a very great loss of blood. On introducing the finger into the rectum I felt a polypus about as large as a small marble. Blood oozed freely from its surface, but there was no squirting vessel. It was at once removed. Everything was done for the child, but it died later in the day.

At the post-mortem examination the whole of the large intestine, with a considerable portion of the smaller bowel, was distended with blood.

Except for the unfortunate occurrence of this bleeding there was no reason why the child should not have recovered rapidly and completely; and as for the future such deaths from hæmorrhage can be readily obviated by the intra-venous injection of saline solutions, for the perfectly satisfactory application of which we are indebted to the late Dr. Wooldridge, I think we must regard the fatal result in this case as purely accidental and quite independent of the operation.

I would now call your attention to the results of eleven cases of laminectomy performed for compression paraplegia arising as a complication of spinal caries, and I will state my facts and conclusions as briefly as possible.

Case 2.—H. S., æt. 7½ years, was admitted under my care in February, 1889.

He gave thirteen months' history of deformity and eleven months' history of paraplegia, with more or less incontinence of urine and fæces.

The spinous process of the fifth dorsal vertebra formed the summit of the curve. He had no power in his legs or abdomen. His bronchial tubes contained much muco-pus, which the paralysis of his abdominal muscles prevented him expelling satisfactorily. His temperature was high at night.

Operation, February 15.—The front of the cord was severely compressed between the laminæ and the posterior surface of the bodies of the vertebræ. These seemed very prominent, and covered by a firm elastic layer which did not appear to contain any caseous material. A month after the operation the child could move his legs freely, and had improved greatly in health. He now leads an active life and enjoys good health.

Case 3.—H. M., æt. 32. Admitted March 20, 1890. He gave two years' history of pain in the back, eighteen months' history of deformity, and three weeks' history of progressive paraplegia.

The apex of the curve was formed by the tenth dorsal spine. There was much paralysis of the right leg and slight paralysis of the left. Sensation was impaired on both sides.

On May 2 paraplegia was complete, analgesia and very impaired ordinary sensation.

Operation, May 13.—A large mass of caseous granulation tissue was found on the back of the dura-matral sheath, compressing the cord, and extending by a narrow process along one side of the cord to a carious cavity in the adjacent bodies of two dorsal vertebræ.

He recovered complete power slowly but steadily after the operation, and now leads an active, useful life.

Case 4.—W. S., æt. 16, admitted August 29, 1890. He had suffered from pain followed by deformity for one year, and for six months from progressive paraplegia.

He was found to be completely paraplegic up to last of sixth rib. He had imperfect control over his sphincter. The spine of the fifth dorsal vertebra formed the summit of the curve.

Operation, September 1.—Cord found compressed by a large mass of firm caseous material, which extended deeply into the chest through the several diseased bodies. Much necrosed bone was removed.

He improved considerably for a time, and then relapsed. On a second occasion a further quantity of tubercular material was taken out of the cavities, which had been emptied as perfectly as possible at the first operation. Within a few weeks several collections could be felt beneath the skin in the neighbourhood of the wound. The parents refused any further operative interference.

His condition on his discharge was but slightly better than on admission.

Case 5.—K. B., æt. 21, admitted October 28, 1890.

Gave four years' history of injury, two and a half years' history of deformity of spine and disease of the knee-joints, and nine months' history of progressive paraplegia. She was a very feeble, emaciated girl. Her right knee-joint was disorganised and dislocated. The spine of the ninth dorsal

vertebra formed the summit of the curve. There was complete paraplegia and almost perfect anæsthesia.

Operation, November 5.—Cord was compressed between the body of the tenth dorsal vertebra and the lamina of the eleventh, which was displaced forwards. No abscess could be found, but the body of the tenth felt soft.

She recovered rapidly and completely.

On November 30 the knee was excised.

Five months after the operation paraplegia developed rapidly and became complete, and she got cystitis. A further operation showed the pressure of a large abscess with much diseased bone. She again recovered perfectly. The knee is also well. She is, however, too much of an invalid to get about.

Case 6.—A. T., æt. 7, admitted February 5, 1891.

He gave three months' history of deformity and six weeks' paraplegia, which rapidly became complete. Sensation was much impaired. The sixth dorsal spine formed the apex of the curve.

Operation, February 10.—There was a large abscess compressing the anterior aspect of cord, and extending into the bodies of several vertebræ. He recovered rapidly and completely, and now leads an active life.

Case 7.—T. J., æt. 23, admitted July 23, 1891. Had deformity and paraplegia five years ago. He recovered power after being kept in the recumbent position for fifteen months, but suffered from a deep pain in the chest. Partial paraplegia returned three months ago and progressed.

Operation, July 24.—The cord was compressed anteriorly by the wall of a very large abscess, which extended several inches into the chest, where its wall was formed of bone, showing that it must have existed for several years. He is now progressing very favorably.

Case 8.—L. E. A., æt. 5½, admitted August 6, 1891, into the Hospital for Sick Children.

She gave two years' history of deformity in the upper dorsal spine and six weeks' paraplegia, which was not complete. She was an extremely feeble child. At the operation the cord was found to be compressed by an abscess, which extended for a great distance into the chest, and the destruc-

tion of the bodies of the vertebræ was very great. The child bore the operation badly, and died a few hours afterwards.

Case 9.—E. R., æt. 8, admitted April 30, 1891. He gave two and a half years' history of deformity of the spine of the sixth dorsal vertebra forming its summit, and the abrupt onset of an almost complete paraplegia three weeks ago. Sensation not much impaired. Very delicate boy.

Operation, May 2.—Large abscess compressing cord, with much destruction of bodies of vertebræ. Rapid recovery. Now leads an active life.

Case 10.—W. H. W., æt. 7, admitted April 18, 1891, into the Hospital for Sick Children. He gave two years' history of spinal disease and five weeks' history of paraplegia, which developed suddenly, with imperfect control of sphincters. The fifth dorsal spine formed the apex of the curve.

Operation, April 30.—Large abscess compressing cord. The boy now leads an active life.

Case 11.—J. M., æt. 17, admitted September 10, 1891. He gave a year's history of spinal disease and a month's history of progressive paraplegia. Sensation was much impaired.

Operation, September 12.—Abscess compressing front of cord and involving the bodies of three vertebræ. He is now progressing most satisfactorily.

I would now direct your attention to the following facts, namely:

1. That these represent all the cases of compression paraplegia due to spinal caries which have come under my care.

2. That in every case with one exception (Case 2, where the granulation material had not yet broken down) the cord was compressed by an abscess which pressed upon its anterior surface, in some cases extending backwards on either side of the cord and compressing it laterally, and in one case extending to the back of the cord and compressing its posterior surface also.

3. That in none of these cases was there observed any such fibrous neoplasm involving the posterior surface of the dura mater, as was described by that distinguished pioneer of

spinal surgery, Dr. MacEwen. That condition must, therefore, be infrequent.

4. That the conditions found at the operation appeared in every case to preclude the possibility of the satisfactory recovery of the spinal column and cord without surgical interference. I would point out that in Case 7, where the patient appeared to have been treated successfully by eighteen months' recumbency, the relief of the pressure upon the cord resulted from the extension of the abscess cavity into the chest, obviously a most undesirable occurrence, and one which resulted in a subsequent compression of the cord.

5. That several of these cases would of a certainty have died from chest or bladder complications from which they were suffering, and which only disappeared when they recovered power over their intercostal and abdominal muscles.

6. That though several of the patients were dangerously ill, they bore the operation very well.

7. That in the only case in which death was consequent upon the operation, the child was extremely feeble. It is highly probable that this case also would have survived if saline injection had been used.

8. That in only one case was the subsequent formation of tubercular material so rapid as to obliterate very quickly the benefit derived from the two operations. I intend to make another attempt in this case if I can induce the parents to consent.

9. That apart from the presence of the symptoms resulting from pressure on the cord, the very large amount of disease present in every case but one (Case 2), and the size and extent of the abscess cavities, rendered it, in my opinion, impossible for the bodies to ankylose and the spinal column to become useful without operative interference.

10. That in most of these cases the cord was compressed about the level of the fifth or sixth dorsal vertebræ.

11. That in several cases which recovered after operation some of the deep reflexes could not be obtained.

In the face of these facts I think I am quite justified in urging that every case of paraplegia due to spinal caries should be operated on with as little delay as possible, and that the treatment by recumbency is as bad in principle as it is in practice.

The operation involves very slight risk; it is followed by

little or no pain; it relieves the patient of the compression symptoms; and lastly, but not of least importance, it enables one to treat the diseased vertebræ directly, not only by spooning, irrigation, and the thorough removal of all caseous material and necrosed and carious bone, but also by the local application of iodoform, from which, I believe, I have derived the greatest benefit in these and similar cases.

Addenda (March 12, 1892).

Case 2.—Still strong and well.

Case 3.—Still strong and well.

Case 4.—Was again operated on in the summer of 1891, and a great quantity of necrosed bone was removed. Some benefit resulted; he died of influenza and pneumonia.

Case 5.—Died in the autumn of 1891 of pulmonary phthisis, having had no recurrence of the paraplegia.

Case 6.—Still active and healthy.

Case 7.—Improving steadily, can use his legs freely. His general health is, however, feeble.

Case 9.—A small sinus which discharges pus has formed over the curvature. He is very delicate, but has had no return of the compressive symptoms, and walks very well.

Case 10.—Still active and well.

Case 11.—The paralysis returned shortly after the operation, and a subsequent more extensive operation was performed with only temporary benefit.

VI.—*A case of Hæmorrhagic Pericarditis with simple effusion in Right Pleura: aspiration of pericardium thirteen times: paracentesis of pleura seven times: recovery.* By T. Churton, M.D. *Read November* 13, 1891.

GEORGE M., æt. 46, a well-built man, with dark hair and brown eyes, of quick intelligence, was admitted into the Leeds General Infirmary on July 24, 1890, complaining of shortness of breath and some pain in the chest. Temp. 98·5° evening, 97·2° morning; pulse 80; resp. 30. There was a very large area of cardiac dulness, and continuous with this below the right nipple was dulness caused by a considerable effusion in the right pleura. Mr. E. B. Hulbert, then house physician, now of Windsor, made the following note:—On the right side there is dulness 1 inch beyond sternum; on the left side in the first space, 1 inch from median line; in second space, 2½ inches; third space, 3½; fourth and fifth spaces, 5½ inches from it. The pulse was small, heart's impulse not perceptible; sounds indistinct; no bruits. Distinct œdema of chest in its entire circumference; no obvious dropsy elsewhere. No cough nor expectoration. Urine lithatic, not albuminous; sp. gr. 1030.

History.—For the last seven weeks he had been able to do very little work on account of shortness of breath and pain, referred to chest generally, not distinctly localised. Up to that time he had been strong and never ill, an active and exceptionally clever workman. Previous to admission he had been staying for a week at a Convalescent Home, but had got worse there.

Causation.—For several, perhaps ten or fifteen years, he had "lived chiefly upon beer and whiskey, which latter he drank without water," and he had often drunk to great excess. During last seven weeks he had drunk little. He was married, but now lived apart from his family; several children were alive, but three or four had died. No history of venereal disease or of rheumatism.

Treatment.—The right pleura was first tapped by a Roberts trocar, 29 oz. of clear straw-coloured fluid, in which

a light coagulum formed on standing, being drawn off, but with very little relief to the symptoms. He complained of much pain about the præcordia. On July 27 I explored the pericardial area in three places: (1) the left fifth space just external to the mammillary line; (2) half an inch internal to the first; (3) in the *right* fifth space an inch from the edge of the sternum. The needle entered to a depth of about ¾ inch. At each point—that is, on both the right and the left sides of the sternum—a syringe-full of what at first sight appeared to be pure dark blood was obtained. It was serous, but deposited a layer of blood-cells one twelfth of its depth. The supernatant fluid was rather stained; there was no coagulation whatever. My colleague, Mr. Mayo Robson, kindly aspirated the pericardium in the left fifth space at the point above mentioned, and withdrew 8 oz. of similar blood-stained fluid. The pulse improved distinctly during the operation, and the area of præcordial dulness plainly diminished in every direction, but the patient complaining of faintness the needle was removed.

July 27.—The urgent symptoms having returned, the resident surgical officer, Mr. Moyniham, aspirated the pericardium at the same place, obtaining 3 oz of the fluid. The pulse fell from 128 to 90.

July 30.—"Respiratory pulse" distinct. I requested that aspiration of the pericardium on the *right* of the sternum at the point of former exploration should be tried if the patient became worse. This was done at 2 A.M. on the 31st, but by misapprehension in the fourth space; only 2 drachms of fluid of the same quality were obtained. Aspiration on the left side on August 2 produced only 2 oz.

Having frequently observed in the post-mortem room that fluid in large quantity and free in the pericardial cavity was collected in three chief pools, one in the right lower angle, another in the left, the third at the upper part of the cavity, and as it was evident that a needle passed too deeply into either of the lateral pools would merely pass harmlessly through the pericardium into the lung; and also finding by measurement that in the distended pericardium of an ordinary man this point would be about 2¼ inches distant from the surface, on August 8 I passed the aspirating needle to a depth of 2 inches in the fifth space in the nipple line; 22 oz. of the fluid were obtained at this depth. As it was observed that when the patient's chest was raised a few inches the third left space became more resonant while the fifth space

became dull to a greater outward extent, he was cautiously raised slightly before this aspiration. The relief given was considerable; the pulse, which previously could scarcely be felt, could now easily be counted; the cardiac area was much lessened; the breathing improved; the lips and face became less livid, and the patient, even while the aspiration was in progress, regained something of his natural cheeriness. A small aspirator with a long needle was used, and the fluid was withdrawn very slowly (about an hour).

Two days afterwards (August 10) there was some re-accumulation, and he seemed almost as prostrate as ever, chiefly owing to the extreme difficulty with which he could be induced to take any form of ordinary food. It was apparently necessary again to relieve the heart by aspiration of the fluid, and 4½ oz. were taken from the same space, ¼ inch external to the nipple line; I did not think it desirable to take more. Two hours after this he ate his first solid meal, a very small but luxurious one. Milk and any ordinary invalid diet he could not take at all. Pericardial friction was now plainly audible over the præcordia. On the very next day (11th) it was necessary to aspirate 3½, and on the 13th 2 oz. Probably because, though extremely prostrate and indifferent, he was now taking a moderate quantity of food, being almost hourly roused and stimulated by every sort of delicacy, the fluid re-accumulated less quickly, or the heart endured it better. No further aspiration was necessary for ten days, though as early as August 17 the friction-sound had gone; the fluid had returned; compression râles were distinct in the lung overlapping the pericardium; there was no cough or expectoration whatever. On the 19th phlebitis appeared in the right popliteal vein. On the 22nd he is described as rambling, moaning, pallid, and wan; seems unconscious, but is easily roused for a few moments; excreta passed into bed; radial pulse 100, scarcely perceptible; respiration 36; a dry, crackling sound in left lung overlying pericardium persists, and there is dulness on strong percussion over this part. On the following morning I again passed an aspirating needle to a depth of 2 inches, ¼ inch internal to the nipple line, and slowly withdrew of the same blood-like fluid 46½ oz. The dull cardiac area was much lessened, and the pulse greatly improved during the aspiration, which lasted three quarters of an hour, and was discontinued because Mr. Hulbert, who was holding the needle in position, felt, as I also immediately did, the heart grating against it. But no

harm was done, as the point of the needle, slightly curved, had been kept carefully turned towards the left, the needle itself being held at a right angle to the vertical plane of the chest.

Next day (24th) he was much improved. "The dulness has entirely gone from right of sternum and from left nipple line, but the trace line of dulness shows a distinct distension of the upper part of the pericardial cavity, the patient lying almost level. The breath-sound is now loud and clear over the lung formerly compressed. Pulse regular and of fair strength." He was, however, in a very prostrate state.

On the 26th, only three days after the large quantity above mentioned was obtained, it was necessary to withdraw 8 oz. of the same kind of fluid from the same place. Three days after this "the heart's impulse perceptible; fourth rib is scarcely dull; no râles in lung." But again on the following day he was worse, and 20 oz. of fluid were removed from the right pleura. This fluid was now slightly red, and deposited a few blood-cells.

August 31.—"No improvement having resulted either at the moment or since from tapping the pleura last night, the pericardium was again aspirated, 6½ oz. of fluid, which deposited a layer of $\frac{1}{12}$ of blood-cells, being withdrawn." The tongue and palate were thickly covered with aphthæ, readily cured by applications of boracic lotion.

September 2.—Daily dry cupping of præcordia was ordered, and perhaps had a good effect. At all events, only two more aspirations were necessary, on September 6, 9 oz., and 11, 2 oz. In the first of these the needle was apparently passed through the lung, external to the perfectly dull area, causing much oscillation of the needle, until the patient, though nervous and excited, was persuaded to breathe with the abdomen and keep his chest motionless. In the last aspiration the heart was again felt grating against the needle when 2 oz. had been obtained, and this fluid deposited less than $\frac{1}{20}$ of blood-cells; the supernatant serum was not at all stained; sp. gr. of fluid 1013. He was now taking more food, though as yet not less alcohol; and probably on this account it was not again necessary to aspirate the pericardium. Absorption of the remaining fluid went on very slowly, and was not complete until late in January, 1891. On December 18, 1890, 6 oz. of clear fluid were withdrawn from the pleura. He was in bed six months, and was sent to the Con-

valescent Home in March, 1891, having been in the hospital more than eight months.

The temperature was usually subnormal—97° M., 98° E., and only once reached 100°. It is worthy of note that he had no delirium or hallucinations until August 2, after the right pleura had been tapped twice—29 oz. and 17 oz.—and the pericardium also twice—8 oz. and 3 oz. His delirium consisted of occasional visual hallucinations and absurd *questions*, or statements as to ability to go to work next day; his *answers* were always rational. In cases of simple hæmorrhagic pleurisy tapping has never appeared to cause such a result. Tapping the peritoneum for ascites due to cirrhosis of liver, though often beneficial, has seemed injurious to patients who cannot take food, probably because the fluid lost by the blood in the refilling of the sac is not adequately replaced. It was probably in this manner that the delirium and prostration were brought about and the re-accumulations permitted; in the absence of sufficient material, restoration of tissue to a normal state was not possible.

At first he had absolute anorexia, and could not be got to eat anything at all; he said he could not swallow solids, and begged for brandy or whiskey, and there was no alternative on July 28 than to give him 6 oz. in the day; on August 1, 8 oz. were ordered daily; on August 4, 12 oz.; and about this latter quantity was continued until September 15, when it was reduced to 6 oz., *i. e.* 2 dr. every hour, but he continued beer or sherry in addition. On September 24 the whiskey was reduced to 3 oz.; on 27th it was stopped. The effect of the alcohol of all kinds upon his pulse and his brain was made the subject of careful and continuous observation, and it was agreed by everyone concerned that the effect was good, and that no less a quantity would suffice until his appetite was restored. Perhaps it may be well to state what food he had. The first thing he could eat was roast duck, the next was a very finely made pork pie; nothing else would tempt him. Sardines, tomatoes, oysters, herrings, fried haddock, lamb, sandwiches of various kinds, and many other articles of food were used in turn, and gradually overcame the anorexia. Nutrient suppositories were also given. The liver was much enlarged; on August 11 it was tender, and there was a distinct friction-sound over it. Leeches applied over the area relieved the tenderness. Even on December 15 the liver was still decidedly large. The spleen was not much enlarged. There was slight jaundice and ascites, but neither symptom

lasted long. His breath was extremely offensive during the starvation period, but quickly became normal after he began to take food.

The highest respiration-rate taken four-hourly was noted on August 22 at 2 P.M.; it was between 30 and 40 on several occasions about this time, and also at some other times of his illness. The highest pulse-rate was not coincident with this high breath-rate; the pulse then was only 100. On September 13, when the pulse was 120, the breathing was 28. There was no constant variation. Attacks of popliteal phlebitis occurred on August 18 and August 26 respectively, causing the toes to become purplish and each leg swollen for a week or more. Upon September 26, and for some days after, there was swelling, possibly a mere œdema, over the external lateral ligament of the right ankle for a few days, not very tender; no redness. The œdema of the chest-wall noted on admission did not extend to the sacrum or lower part of the back. The date of its disappearance is not noted, but dry cupping of the præcordia was begun on September 4, and continued daily for two or three weeks after, and there was no œdema there on that date. The sp. gr. of the urine varied from 1010 to 1018; occasionally some cystitis was suspected, in addition to a purulent urethritis, first observed on September 20, which persisted for some time, but finally yielded to zinc injections. The urine was perfectly normal on November 4. It would probably have been well if dry cupping of the chest had been practised earlier, notwithstanding the œdema existing there. In hæmorrhagic nephritis the reduction of the quantity of blood on the day after the application of two large cupping-glasses over each kidney has several times been observed by us. Leeches also cause diminution of the hæmorrhage in the end; but on the first day after their application the quantity of blood in the urine is increased. Although the pericardial fluid drawn on August 2 deposited blood-cells in such quantity, there was no coagulum found in it. The fluid itself was stained by hæmatin, and many pale cells were found even in the uppermost layers, which had apparently undergone a change which altered their specific gravity. Many of the deposited cells were frayed and granular. There were very few leucocytes. Two days afterwards the deposited cells were of a bright brick-red, the fluid nearly black. The cells under the microscope, lightly pressed by a cover-glass, slowly formed rouleaux. The sp. gr. of the fluid was usually about 1020, sometimes 1018.

The sp. gr. of the fluid from the pleura was 1008 (August 11).

Like many others, I have made observations for some years as to the best position for aspirating the pericardium. Concerning this a most instructive discussion took place at this Society on November 23, 1888. My own observations show, as did those of Dr. Dickinson, Dr. Barlow, and Mr. Godlee, that aspiration on the right of the sternum might be successful when the operation would be useless on the left of it. (1) In the case of a boy in the infirmary a few years ago under my care with signs of cardiac obstruction, there was a small collection (about 2 oz.) of sanguineous fluid to the outer side of and behind the right ventricle, and the remainder of the pericardium being adherent, this blood-like fluid at first caused the pathologist to suppose that he was opening an altered ventricle. It was doubtful whether this could have been aspirated at all. (2) In the case of a girl who died of rheumatic mitral and aortic disease the heart was rather large and slightly adherent to pericardium at apex. There was a little clear fluid in the right corner of the sac, none in the left. This fluid was reached by a needle passed through the fifth right intercostal space, 1 inch from the sternal margin. At this point the needle avoided both the internal mammary artery and, when passed deeply, the vena cava. It was below the projection of the auricle. The needle here should have its point (slightly curved) kept midway between the downward and outward positions. (3) It was found possible to pump from the right corner 15 oz. out of 28 oz. of fluid contained in the pericardium of a patient who had died of dropsy secondary to mitral disease, &c. (4) A man, æt. 24, who had been ill a month, had been operated on for right empyema, but had died two days afterwards; 25 oz. of bloody semi-purulent fluid were found in the pericardium. The right ventricle was adherent to the front of the sac by flaky lymph. The fluid lay to the right of this, wholly to the right of the heart. Outside the pericardium, between it and the inner aspect of the right lung, was an "internal" empyema about the size of three fingers. It is possible that the suppurating inflammation had invaded the pericardium from the right side, travelling across it to the left. The fluid could only have been reached by aspiration on the right of the sternum.

I suppose that the pleura can be successfully aspirated in the left fifth space near the nipple line, and I have in fact, once perhaps, done this, in doubt whether the pleura or the

pericardium was being emptied. But in the present case there is the following evidence as to the fluid having been in the pericardium :—(*a*) The fluid on the left of the sternum precisely resembled that on the right in the cardiac area. (*b*) It differed greatly from the fluid in the right pleura. (*c*) There was no fluid in the left pleura. (*d*) On August 10 there was still dulness to right of sternum in the fifth space, but between this dull space and the equally dull area of the pleural effusion there was a finger's breadth of partial dulness. (*e*) During aspiration, dulness of whole cardiac area diminished concentrically. (*f*) The pericardial friction was audible when the sac was partially emptied. (*g*) Grating of the heart against the needle was felt upon two occasions during aspiration.

Recovery is not rare in cases of hæmorrhagic pericarditis; M. T. Ferrier found five recoveries in nine collected cases. In ordinary acute pericarditis the quantity of effusion is occasionally large without causing much distress; in other cases, the quantity being smaller, the symptoms are much worse. In these, the withdrawal of even a few drachms of fluid seems to turn the scale; but in them the choice of a site for puncture is hard. In the case I have related it was very easy; and the only practical outcome of the case would seem to be—(1) that in a similar case it would be well to begin dry cupping as early as possible; (2) that before proceeding to withdraw *large* quantities of fluid from a patient his appetite should be assured; and (3) that, as sometimes happens in cases of pleural effusion, there may be an imperative necessity for an unexpected number of repetitions of aspiration.

Postscript.—When first presented to the Society the paper ended happily at this point. But now must come a postscript which has doubtless been anticipated. The unfortunate patient is dead. On leaving the Convalescent Home, instead of returning to the hospital for advice he proceeded to work, and, moreover, never able to endure rough food, to his former diet, consisting chiefly of alcohol. He was readmitted after a month or so. There was a little fluid in the right pleura, but no signs of any in the pericardium. On the day after admission he died suddenly—apparently from syncope. At the autopsy the heart was found universally adherent to the pericardium; the pericardium was partially adherent to the left lung, firmly to the right lung. The base of the right lung was adherent to the diaphragm, which in its turn was firmly adherent to the liver. The heart was

rather large; endocardium normal. The arteries showed scarcely any atheroma. The liver was congested, nutmeg; not cirrhotic. The kidneys were rather hard, but appeared otherwise healthy. There were 12 oz. of somewhat blood-stained fluid in the right pleura, certainly of recent formation, for the fluid drawn from this pleura on December 15 was clear and free from blood.

VII.—*An account of a case where a Right Aortic Arch passed behind the œsophagus to the left side, and becoming dilated killed the patient by slow compression of the trachea.* By W. P. Herringham, M.D. *Read November* 13, 1891.

THE patient, Charles L., æt. 39, a painter and paperhanger by trade, was admitted into the West London Hospital on August 23, 1890. He was at first placed under my surgical colleagues, Mr. Bruce Clarke and Mr. Paget, and was afterwards transferred to my care.

He was a rather spare man, strongly built, and had enjoyed good health up to the spring of 1890. He had never had syphilis or lead poisoning.

In the spring of 1890 he got a cough which did not improve. In June he noticed difficulty in breathing and hoarseness in speaking. These symptoms became more severe, and formed the cause of his admission. When he entered the hospital the dyspnœa was so extreme that the question of tracheotomy was seriously considered. He lay in bed, and under iodide of potassium mixed with corrosive sublimate the urgency of the symptoms was to some extent relieved.

On November 15, when I first saw him, there was much inspiratory dyspnœa and stridor, the voice was hoarse, the whole expression that of great labour and anxiety. There was complete paralysis of the right half of the glottis, and much emphysema and bronchitis in the chest. It appeared, however, that neither of these conditions was sufficient to account for the dyspnœa and stridor, and that the true cause was something compressing the trachea. Nothing could be felt outside the thorax, save that a few of the right cervical glands were slightly enlarged; and no evidence could be obtained of disease within it, except a little doubtful dulness in the first right intercostal space. There had been a good deal of hæmoptysis at various times since admission. It was probable that the same cause which had paralysed the recurrent laryngeal nerve was operating now upon the trachea, and the region of the subclavian artery was therefore carefully examined. A little more pulsation could be felt in the

root of the neck on the right than on the left side, but nothing sufficient to lead to the diagnosis of aneurysm. Moreover the pupils were equal and their reactions normal, which could hardly have been the case if the first part of the subclavian had been dilated, since the annulus of Vieussens conveying the fibres of the second dorsal nerve to the eye lies only a very short distance from the recurrent laryngeal.

No evidence was obtained of solid tumour or aneurysm elsewhere. The state of the heart, owing first to the emphysema, and second to the loud respiratory noises, remained perforce doubtful.

Dysphagia was first noticed on February 2. From this time he swallowed solids with difficulty or not at all; fluids he was always able to take. His condition remained the same. He sank gradually from the terrible labour and distress caused by the continual dyspnœa, and by the wakefulness to which it condemned him; and becoming more anæmic and weaker, and losing flesh slightly but steadily, he died on February 9, 1891, from exhaustion.

The only additional evidence that we had obtained before death was a slight increase of the dulness in the first right interspace. No pulsation or bruit or other proof of aneurysm was discovered during life.

The body was well nourished, and contained a fair amount of subcutaneous fat. The lungs were congested. The kidneys were large, weighing 14 oz. the pair, hard, granular, and purple on section. The right side of the heart was greatly dilated, and full of blood; the left side empty and somewhat hypertrophied. The other organs were healthy except the aorta, the condition of which gave the key to the symptoms. It passed upwards to the right of the trachea, and instead of crossing in front of it, turned backward on its right side, and then crossed to the left behind the œsophagus, to reach the usual position of the descending part on the left side of the vertebræ. From its first turn to the origin of the cœliac axis the vessel was greatly dilated. At one part it had become adherent to the body of the fifth dorsal vertebra, and could not be removed without making a hole in the thin posterior wall. Otherwise it had not caused ulceration or inflammation of any organ, except the right recurrent laryngeal, which, turning under the aortic arch instead of under the subclavian, had become thickened and adherent to the dilated artery. This explained both the right-sided laryngeal paralysis and the escape of the ocular

nerves. The dyspnœa and stridor were explained by the condition of the trachea, which just above its termination was seen projecting sharply forwards, forced and bent by the dilated vessel behind it. The dysphagia was explained by the same pressure on the œsophagus; but this, though situated further back, had, I suppose, yielded more easily than the rigid trachea, and thus the symptoms here produced had been much less severe. There was no adhesion between either of these tubes and the aorta.

A more detailed account of the anatomy of the specimen will be found in the *Journal of Anatomy and Physiology*, vol. xxv, *Proc. Anat. Soc.*, p. vi. It is a very rare variation, and as apparently none of the cases recorded were aneurysmal, the specimen, which is now in the museum of St. Bartholomew's Hospital, may be considered unique.

VIII.—*On eight cases of Uræmic Eruption of the Skin.*

By Le Cronier Lancaster, M.B. *Read November 13, 1891.*

THE object of this paper is to draw attention to certain peculiar states of the skin associated with a uræmic condition of the blood. It is not a subject which has received much notice from the majority of writers on renal or skin diseases. There are short references to it in Ziemssen's *Cyclopædia*, in Dr. Pye-Smith's edition of Fagge's *Medicine*, and in Dr. Fowler's *Dictionary of Medicine;* but nowhere have I been able to find any full description of uræmic eruptions of the skin.

The cases upon which this paper is based, eight in number, have all occurred in the wards of St. George's Hospital within the last three years. The clinical history of a uræmic skin eruption is somewhat as follows:—The patient is admitted for serious renal disease—most frequently chronic interstitial nephritis. The symptoms of chronic uræmia, if not present from the first, sooner or later show themselves—chiefly vomiting and diarrhœa, with drowsiness rather than coma. After a variable interval a peculiar and rather characteristic eruption appears on the skin. This eruption is first seen as discrete maculæ of a bright red colour, usually upon the extensor surfaces of the hands, fore-arms, and legs, in this respect resembling erythema multiforme. Within a few hours to a day or two the maculæ become papular, and fresh maculæ and papulæ rapidly appear over all parts of the body, including the palms of the hands and the soles of the feet, and are especially well developed over the face. That the eruption also attacks the mucous membranes is shown by the sore and congested throat, which the patients sometimes complain of at this stage. The papules soon tend to become confluent over large areas of the surface, this tendency being most marked over the back, arms, and thighs. Beyond a slight deepening in tint the eruption remains in this state for about three or four days, and then undergoes one of three changes:—1. It gradually subsides, with extremely free desquamation, the epidermis being shed in flakes, almost equalling in size those seen in dermatitis exfoliativa. After

desquamation has finished, the underlying skin is of a dull red colour, brawny, and thickened. Hæmorrhage generally takes place into some few of the papules, either previous to or during the desquamative process. 2. The rash may become eczematous in nature, with somewhat free exudation of a gummy fluid, which dries and forms scabs and crusts. As this change seems particularly liable to occur over the face, the patient becomes much disfigured, and in two cases a discharge of the gummy fluid from the ear, owing to the eruption having attacked the external meatus, simulated ear disease. 3. In the severer cases pustulation or even the formation of small abscesses follows the eczematous stage. In one case the abscesses were thus described in the post-mortem record:—"Scattered all over the body, with the exception of the scalp, are numerous discrete pustules; some have ruptured, others are abscesses in the subcutaneous tissue; some have healed, leaving depressed scars. The majority are about the size of a pea, but some on the anterior surface of the legs and on the thenar eminences are as large as hazel-nuts. The floor of the abscesses is formed by rough fibrous and muscular tissue, bone being nowhere visible." In addition to the pustules large blisters containing a sero-purulent fluid may form, principally on those parts of the body liable to be rubbed, such as the posterior surface of the shoulders.

The progress of the eruption is usually attended with itching, often only moderate in degree, but sometimes very excessive, and then extremely difficult to allay by any local application. This itching is presumably due to the presence of urea or some other urinary constituent in the tissues, and the consequent irritation of the terminal nerve-filaments.

A most important feature of this eruption is its very grave prognostic significance. It usually appears when the patient's general condition is steadily on the decline, is attended with a further and more rapid decline, and in all the cases, with one solitary exception, it was followed by death within a period of five weeks from its first outbreak.

The following table summarises the cases in which this symptom has been observed:

Name	Age.	Kidney Lesion.	Urine	Result.
1. Eliza D.	46	Pale granular. 7 oz.	Sp. gr. low. Much albumen	Death.
2. Robert M.	28	Granular	Sp. gr. 1015. Much albumen	Death.
3. Thomas B.	25	Pale granular. 6 oz.	Sp. gr. 1010–1015. Albumen a trace—$\frac{1}{4}$	Death.
4. Henry S.	28	Pale granular	Sp. gr. 1010–1014. Albumen $\frac{1}{4}$–$\frac{1}{3}$	Death.
5. Alfred W.	38	[No post-mortem]	Sp. gr. 1010–1016. Albumen $\frac{1}{4}$–$\frac{1}{3}$	Death.
6. Charles T.	28	Lardaceous. 24 oz.	Sp. gr. 1022–1031. Albumen nearly solid	Death.
7. illiam S.	12		Sp. gr. 1010–1016. Albumen $\frac{1}{10}$–$\frac{1}{4}$	Recovery.
8. Elise R.	ca. 50	Red granular 7 oz.	Sp. gr. 1022. Albumen 0 (only tested once)	Death.

Brief Notes on the Cases.

Case 1.—Eliza D., æt. 46, admitted for headache, proptosis with loss of sight of the left eye, and obscure cerebral symptoms, shown by the autopsy to be caused by a fibroma growing from the sheath of the left Gasserian ganglion, with an aneurysm of the cerebral portion of the left internal carotid artery. After a month's stay in the hospital, during most of which time she was in a drowsy and delirious state, the rash appeared; faded in a fortnight with free desquamation; death following a week later.

Case 2.—Robert M., æt. 28, painter. Admitted for lead colic. He made a slow recovery, and then went to a convalescent hospital. After he had been there a week the eruption appeared on his arms, forearms, thorax, back, and thighs. The temperature rose to 102° F. at the commencement of the eruption, but sank in a day or two to normal. Desquamation was very free. The rash had almost faded after three weeks, but he gradually sank, and died exactly one month after its first appearance.

Case 3.—Thomas B., æt. 25, omnibus driver. Admitted for bronchitis. This speedily improved, but his general health deteriorated, and after he had been in hospital a month the rash appeared, and ran a very severe course. There was intense itching. He took iodide of potassium in 15-grain doses three times a day, *after* the appearance of the

eruption, on the surmise that it was of syphilitic origin. Under this treatment, which was soon discontinued, the rash became pustular, and he died just a month from its commencement.

Case 4.—Henry S., æt. 28, labourer. Admitted for persistent occipital headache and vomiting. He at first improved, but the symptoms recurred with increased intensity. He became very drowsy, and the eruption broke out when he had been in the hospital five weeks; death occurring twelve days later during the desquamative period. The temperature rose to 103° F. a few hours before death.

Case 5.—Alfred W., æt. 38, farmer. Admitted for dropsy of legs and dyspnœa. He soon developed slight pleural effusion on the right side, and œdema at the base of the left lung. He became semi-comatose, and symptoms of acute uræmia threatened, which, however, diminished on the outbreak of the eruption six weeks after his admission. Desquamation had nearly subsided when he died, worn out by persistent diarrhœa, four weeks later.

Case 6.—Charles T., æt. 28. Admitted for œdema of legs and lungs. The œdema gradually lessened, but the man's strength was surely decreased. There was a strong history of syphilis, and the symptoms so characteristic of lardaceous disease of the kidneys, viz. diarrhœa and vomiting, were very prominent. After he had been in the hospital for two months the rash appeared and ran a short course, and desquamation was nearly over, when he died in a slight epileptiform convulsion, fifteen days after the appearance of the eruption. This patient had been taking iodide of potassium *before* the rash came out, and continued it for some days, but the aspect and character of the eruption was so similar to the others, and not at all resembling those due to iodine, that I have no hesitation in including it.

Case 7.—William S., æt. 12, schoolboy. Admitted for headache and slight dropsy. After a temporary improvement he slowly and steadily got worse, and in six weeks the rash came out. The papules were markedly hæmorrhagic, but did not proceed to the pustular stage. Four weeks later his friends, dissatisfied with his progress, removed him to the country, when he made a rapid improvement, and was alive a few months ago, two years after his residence in hospital.

Case 8.—Elise R., æt. 50, maid. Admitted for hemiplegia and aphasia, due to cerebral hæmorrhage. She improved rapidly, and in a month was able to walk about the ward and make herself partially understood. Then a papular rash appeared all over her body, which rapidly became pustular. The pustules commenced to dry up in about eleven days, but she died three weeks later from a fresh cortical hæmorrhage. Though the urine contained no albumen there were other evidences of chronic interstitial nephritis, which was proved by the autopsy.

Though the small number of cases precludes any absolute conclusions being drawn, yet it may be inferred that this eruption is most likely to occur in the different forms of chronic interstitial nephritis when there is but little œdema. It appears to be somewhat more common in men than in women, seems to have no predilection for any special age, and has no connection with gout or lead-poisoning. The urine is usually turbid and pale, of rather low specific gravity; contains a diminished daily quantum of urea; blood and casts are frequently present; the amount of albumen, absent in only one case, varied from a trace up to a quantity which rendered the urine solid on being boiled. Sometimes there is moderate pyrexia when the eruption first breaks out, but the temperature soon falls. Convulsions are unfrequent, so is absolute coma.

The microscopical appearances of the diseased skin are not very characteristic. There is almost complete disappearance of the strata corneum, lucidum, and granulosum, the stratum Malpighii is much increased in thickness and shows evidences of active proliferation, and there is some round-celled infiltration around the vessels in the upper layers of the dermis. As is usually the case with the erythemata, there is but little microscopical evidence of congestion in the blood-vessels. This uræmic rash is not likely to be mistaken for one of the varieties of erythema multiforme, or (if the patient has been taking iodine) for a form of iodide rash. Though at its commencement it closely resembles erythema papulatum, both in aspect and in distribution, yet its progress soon differentiates it; the extremely free desquamation in the slighter cases, the tendency to gummy exudation or even pustulation in the severer cases being rare or unknown in erythema. In only two of the cases had the patient been taking iodide or bromide of potassium or sodium at any recent interval *before* the appearance of the rash, and its course in these cases was in

no ways modified; but it is interesting to note that in the case in which potassium iodide was given for eight days after the rash had appeared, it ran a particularly severe course (*vide* post-mortem report, *supra*). Finally, what is the pathological cause of this eruption?

The experimental researches of Bouchard* have led him to determine seven toxic principles in urine which, when abnormally retained in the body, give rise to the different symptoms of uræmia. Of these toxic principles two are convulsivant in their action, one diuretic, one narcotic, one sialogogue, one temperature-reducing, and one pupil-contracting. One of two hypotheses is probable—either that there is on occasion present yet another as yet unisolated toxic principle, whose presence is manifested by a rash; or that one of the above-mentioned toxines may in persons of a peculiar idiosyncrasy cause an eruption.

This eruption is obviously allied to three other varieties of rash, all of which are due to morbid elements circulating in the blood-vessels:

i. *Pyæmic* rash.

ii. *Ptomaine* rashes—those various and usually transient erythemata and urticaria which occasionally follow upon the ingestion of fish, shell-fish, cheese, sausages, or meat, and are due to the production by bacteria of ptomaines or nitrogenous bases, bodies which are in many respects similar to the vegetable alkaloids.

iii. *Drug* eruptions.

We do not know accurately the physiology of ptomaine and drug eruptions. The most reasonable explanation is that they are of the nature of neuroses, or affection caused by both central and peripheral nerve-irritation. Some of them, such as the belladonna rash, are angeioneuroses, or more temporary dilatations of the blood-vessels leading to hyperæmic conditions; others, such as the iodine rash, and this uræmic eruption are trophoneuroses in which the circulatory disturbances are so intense as to produce definite and more permanent alterations in the nutrition of the skin. There is perhaps also a direct local action on the skin, though according to Professor Neumann, iodine is the only exanthem-producing drug whose presence has been determined in the tissue of the skin. Concerning uræmia, however, we do know that, whereas in normal sweat the amount of urea is infinitesimal, in uræmia so much may be excreted by the

* Quoted from Dr. W. Carter's Bradshawe Lecture on *Uræmia*, 1888.

sweat-glands that when the sweat has evaporated, it may remain upon the surface of the skin as a crystalline pulp, giving the patient an appearance resembling frosted silver. That this rash of uræmia has nothing to do with an excretion by means of the sebaceous glands is proved by its being well marked on the volar surface of the hands, and plantar surface of the feet, localities in which sebaceous glands are absent. In few pathological conditions do we have a better example of how important a factor in disease is the peculiar idiosyncracy of the patient. How numerous are the patients taking the salicylates (for instance), or suffering from uræmia? How rare is the salicylate or uræmic rash? The name *Erythema toxicum* has been proposed to include all eruptions due to foreign substances, whether they be the pyæmic poison, ptomaines, drugs, or a uræmic toxine, and the term *Uræmic erythema* or *Uræmic dermatitis* would be a subdivision of Erythema toxicum.

Should this etiology be accepted by the Society, the skin-eruption seen in uræmia becomes no isolated phenomenon, but at once takes its place as one of the large number of skin rashes due to the presence of a poison in the tissues. In uræmia we have such a poison or poisons, in uræmia, therefore, is this eruption to be sought for, and when found to be dreaded, as but too often a sign of speedily impending death.

IX.—*Two cases of Nephrotomy.* By C. W. Mansell Moullin. *Read November* 13, 1891.

THE first case was that of a lady, unmarried, about forty years of age, under the care of Dr. Mulvany. The patient, who was rather stout but active and energetic, stated that until the last week she had enjoyed excellent health. Seven days before she was suddenly seized with severe pain in the left loin, running down to the iliac fossa, but not to the thigh or labium. For the moment she felt faint and sick, but there was no actual vomiting. This passed off, but the pain continued for many hours, gradually becoming less and less severe. The bowels had acted freely, but from the afternoon of the day upon which she was attacked she had not passed a drop of urine.

This was not the first attack; the same thing had happened to her about seven years before, only on that occasion, after the suppression had lasted six days, a large quantity of gravel mixed with blood came away from the bladder, giving her complete relief; and she had some vague recollection of a similar occurrence in childhood. Unfortunately she was not sure as to the side affected. According to her own account there was frequently a deposit of gravel in her urine.

The patient was in bed, but rather for the sake of convenience of examination than because of weakness. The pulse was strong and of full volume, the colour good, and the tongue moist and clean. The lungs and heart were normal; the bowels had been acting well, and nothing unusual could be felt per vaginam or through the abdominal wall. There was no increased dulness in the lumbar region, and no sign of any tumour; but there was a distinct sense of resistance on pressure, and the muscles were more or less rigid. The left loin and iliac fossa were sensitive to pressure, but as the menstrual period was just finishing some allowance had to be made for this. Very little food had been taken. The patient complained of thirst and of being unable to sleep, but she was perfectly collected and exhibited very fair muscular strength.

From the history and the symptoms there was no doubt that there was only one kidney functionally active, and that its ureter had suddenly become blocked seven days before, in

all probability by a calculus impacted in its upper end, and the evidence pointed upon the whole to the left side of the body; but it was impossible to form any conclusion with regard to the condition or even the existence of the other kidney; and the only hope of giving relief lay either in abdominal exploration and incision of the ureter, or in lumbar nephrotomy. The wall of the abdomen was much too thick and firm for massage to be applied with any benefit, and all ordinary remedies for attacks of renal colic had already been exhausted. This was explained to the patient, but as she wished to talk it over with her friends nothing was done at the time. Directions were given to keep the bowels freely open; the diet was restricted to non-nitrogenous food, and abundance of fluid was given with alkalies in the hope that disintegration might take place as on the previous occasion.

Two days later, that is to say at the commencement of the tenth day of total suppression, the patient gave her consent, but that morning her condition had changed so much for the worse that anything in the shape of such a prolonged operation as peritoneal ureterotomy was out of the question. The mental condition was listless and apathetic; the pulse small and very feeble; the respiration shallow, and the muscular weakness so great that the patient was unable to remain sitting up in bed. A few drachms of brandy were given, and as the pulse showed some improvement it was decided to drain the kidney at once through the loin without attempting anything further. The patient was anæsthetised, and the ordinary lumbar incision made, parallel to and below the level of the last rib. The perirenal fat was rather abundant, but there was no difficulty in finding the kidney, although it seemed to lie unusually deep. Its surface was smooth and uniform but very firm, and it was not possible, either by rolling the patient on to her back or by hooking the kidney outwards, to pass the finger sufficiently far on to the anterior surface to feel the pelvis. A puncture was accordingly made in the cortex, the bleeding stopped by the pressure of the finger, and a pair of dressing forceps pushed through the kidney substance into the pelvis. One or two small fragments of gravel escaped at once with the blood which poured out freely for a moment, but no stone could be felt either with the forceps or a sound. The cavity was large; the end of the instrument could be made to traverse it in all directions, but I could not be certain that it ever really entered the orifice of the ureter, and the condition

that caused the obstruction remained unknown, though there was little doubt as to its nature. Urine began to escape almost at once; one drainage-tube was carried down to the bottom of the wound into the opening that had been made in the cortex, and connected with a receptacle by means of a long piece of rubber tubing; a second was passed into the perirenal cellular tissue, and the fascia and the skin united by suture.

The patient bore the operation exceedingly well, and for some days everything seemed to progress as favourably as possible. She was sick once after the operation; the temperature remained normal; there was no irritation around the wound, which looked as if it would unite by the first intention, and the urine poured steadily drop by drop out of the tube. The chief inconvenience was constant thirst, which nothing seemed able to relieve. The patient, however, never really rallied; the apathetic listless state which came on suddenly the morning of the operation remained unchanged; the muscular strength did not return; she lay in bed, perfectly helpless, unable to keep upon the pillow; and at the end of the third day the urine began to come through the wound around the tube. From this time all trace of repair disappeared, and the cavity gaped widely open again. Advantage was taken of this on one occasion to see if it would not be possible to extract the calculus through the wound, dislodging it by means of a small catheter passed from the bladder along the ureter, but the obstruction was much too firm. Ten days after the operation the wound was in exactly the same condition, the surface covered with small sloughs of fascia, very little redness or inflammation around, and the urine coming through the lower angle. The temperature never rose above 101° F., but the pulse remained weak and feeble; the patient was unable to take any food; the strength continued to fail more and more, and at length death ensued on the twenty-third day.

At the post-mortem examination the left kidney was found to measure 8 inches by 4; the pelvis was even larger in proportion, and an oval uric acid calculus was impacted in the ureter, at its commencement, lying nearly in the middle line of the body. There was no trace of a kidney upon the right side, nor of the ureter, so far at least as the upper end was concerned; the lower might possibly have been concealed in the cellular tissue behind and below the bladder, but the orifice could not be found, and its ex-

istence was doubtful. The immediate cause of death was pyelitis.

Whether the absence of the right kidney was due to malformation or to obstruction of the ureter in infancy or fœtal life with consequent hydronephrosis and atrophy could not be determined. Of the two the latter appears the more probable, as in a very large proportion of the cases in which only one kidney is developed, it is either median or abnormally shaped. In this instance, although it was greatly hypertrophied and displaced somewhat by its increase in size relatively to the parts around, it was not otherwise altered in shape or position. It is true no trace of the capsule on the other side was detected, and no calculus was found along what would have been the course of the ureter, but its minute size, supposing it to have descended early in life, would easily account for its being overlooked.

As regards the mode of operation, in the patient's condition there was no option. Opening the peritoneal cavity would in all probability have proved immediately fatal from shock; but had the patient given her consent at an earlier period the choice would have been a very difficult one. There was no doubt that at the time there was only one kidney functionally active, and that there had been only one at least since the last attack, and possibly from birth. Pain, even when it is definitely localised, is not an absolutely certain guide under such circumstances. When there are two kidneys, and both are blocked by calculi (as might easily have been the case in this instance), the pain excited by the most recent attack is sometimes referred to the organ which has suffered the longest and the most severely. If, on the other hand, there is only one, however acute the suffering may be, it gives little or no clue as to the position the organ may have assumed in the course of development. Local tenderness (especially when, as in this case, there is no one very sensitive spot), muscular rigidity, and the sense of resistance upon deep palpation, do not help to a very much greater extent. Manual examination by the rectum is of no assistance, for even if a calculus can be felt in one ureter, it does not follow that this may not have been there for years, and that the real cause of the latest attack is on the other side of the body. Accordingly, it seems to me that in such cases as these, when examination of the pelvic viscera gives no clue, unless the symptoms definitely point to one side, with the history of a similar trouble having occurred upon the opposite one on a previous occasion,

abdominal exploration should be the rule. In this particular instance neither the symptoms nor the history were sufficiently distinct to deserve full reliance; and I was fortunate in not meeting with any greater difficulty than the depth at which the pelvis of the kidney lay, rendering it impossible to reach it with the finger through the ordinary lumbar incision.

The second case was that of Ann B., æt. 34, who was admitted into the London Hospital in July, 1888, suffering from renal colic. She had been troubled with it at frequent intervals for the last two years. On one occasion she had been treated as an in-patient for it for some weeks; recently it had become so severe and continuous that she was practically disabled by it.

The present attack began fourteen days before admission. For some time previously the patient had not been feeling well, and had suffered from a dull aching pain across the loins. Suddenly one afternoon she was seized with a violent attack on the right side, extending down to the hip and across the epigastrium. This lasted for some hours, causing great prostration and nausea (it was difficult to make out whether she had really been sick on this occasion or not—afterwards she certainly was), and then slowly passed off, though it did not cease altogether. Nearly every day since there had been paroxysms of a similar character more or less severe, in addition to and quite distinct from a chronic persistent aching across the loins. The urine was said to contain a considerable quantity of blood, and there was a constant desire to pass it, but micturition itself was not attended by pain.

The patient had been rather stout, but was losing health and strength. The veins on the face were dilated and the eyelids slightly puffy, but there was no marked anæmia. The skin, except during the paroxysms, was dry but not harsh, and there was no œdema of the extremities. Her easiest attitude was sitting up, inclining rather to the right side, and any attempt to straighten out the right hip-joint was resisted. The pulse was usually 80 in the minute, and somewhat hard; the heart was slightly hypertrophied, and there was some bronchitis and emphysema. The abdomen was tender more or less all over, but especially in the right loin, under the tip of the last rib. There were no ophthalmic changes. She slept fairly well when the pain was not severe; the appetite was not good; the tongue was coated; the bowels irregular, and at times she suffered considerably from flatulence. The

urine often contained blood—sometimes a considerable amount—evenly mixed with it, and without any clots. The specific gravity varied from 1012 to 1014; the amount averaged 40 oz. There was a small quantity of albumin usually present, and generally a deposit of urates.

There was no doubt as to the condition of her kidneys; but the persistent hæmaturia, the frequently recurring attacks of nephralgia, limited to one side and attended by vomiting and great exhaustion, and the pain and tenderness over that part of the body, seemed to point so strongly to the presence of a calculus, and had already reduced her to such a condition of prostration, that an exploratory operation was deemed advisable.

The patient was placed under an anæsthetic and the lower end of the kidney exposed by an incision through the loin, parallel to and slightly below the level of the last rib. The perirenal fat appeared normal. The surface of the kidney was firm and slightly irregular, but there was no marked difference at any one spot. A puncture was made in the cortex in the posterior part of the outer border, the bleeding stopped by pressing the finger against it, and a sound passed through the substance of the kidney into the pelvis. The calyces were thoroughly explored, but nothing was found, and accordingly the sound was withdrawn. The wound was closed in the ordinary way, suturing the fascia and the skin, and a drainage-tube left at the dependent opening. There was no hæmorrhage worth mentioning, and no vessels required compressing or tying.

The following night the patient was rather restless, but slept well after a small injection of morphia. A fair quantity of milk was taken without any nausea, and the urine was passed voluntarily without difficulty. It contained a small quantity of blood and one or two casts. The attacks of pain appeared to have ceased, and the improvement continued for forty-eight hours; then the paroxysms began to return. The third night there were two; the day following one of very great severity, lasting for five hours and leaving the patient absolutely prostrate; and from that time they were even more frequent and more severe than before the operation, occurring many times a day and preventing the patient getting any rest at night. A small quantity of urine drained out through the wound, but in spite of this it appeared to be healing well. There was no inflammation around it, and the temperature never rose above 101° F. On the evening of

the third day the dressings were stained with blood, and the next morning there was a considerable degree of oozing both externally and into the bladder. The following day some clots, which had evidently come down from the pelvis, were passed per urethram. This continued until the sixth day when there appeared to be a certain amount of improvement; but the exhaustion became greater and greater; the pain came back again; the patient was unable to take any food, and gradually sank on the third day. Consciousness was retained to the last and there were no convulsions.

At the post-mortem examination the wound was closed for a considerable part of its extent; there was no hæmorrhage or suppuration around the kidney. Both kidneys were contracted and granular; unfortunately their weight was not recorded, but though the change was distinct the degree was not in any way unusual. The capsule was thickened and adherent, and the pelvis, especially on the side operated upon was congested, and the mucous membrane thickened, but not more so than the operation would account for. The wound was carefully examined, but there was no evidence of any vessel having been injured. The hæmorrhage appears to have been capillary oozing, similar to but more abundant than that which had been going on for the last two years. The other organs presented nothing noteworthy.

It is quite possible that in this case the operation may have hastened the end, although from the rapidity with which the patient was losing ground I do not think so myself. My object in bringing it forward is to obtain some expression of opinion as to the cause of these attacks of nephralgia (which were sufficiently severe to deceive two of my medical colleagues as well as myself), and to ask whether there are any means by which they can be distinguished from that form of colic which attends the presence of a moveable calculus. That profuse attacks of hæmaturia, simulating vesical hæmorrhage, may occur in chronic interstitial nephritis without any calculus or other cause than the inflammatory process itself, has been shown by Mr. Bowlby in the *Transactions of the Clinical Society* for 1887, and also by Dr. West, but I do not gather that in any of the cases recorded by them there were in addition paroxysmal attacks of nephralgia similar to these.

They were not caused by clots descending the ureter, for though they usually coincided with the hæmaturia, on several

occasions this was so slight that it required chemical tests to prove its existence. Sometimes they were brought on by exertion, or sudden movement, but both before and after the operation they not unfrequently began at night, while the patient was asleep. A similar occurrence in connection with renal calculi has been noted by Jacobson and others, but only, I believe, when the retained masses were of considerable size, and it has been attributed to the passage of fæces in the colon over the tender kidney, and the excretion of crystals irritating the surface of the urinary passages; but neither of these explanations is satisfactory in the present case. The pain bore no relation to the menstrual flow. There was nothing wrong with the duodenum; there were no gall-stones or any affection of the gall-bladder; nor, so far as the post-mortem examination could show, was there any difference discernible between the two kidneys, other than that which might reasonably be attributed to the operation. The only definite feature about the attacks of pain was that, with the exception of the forty-eight hours immediately following the operation and quite the end, the last hour or two before the patient's death, they appeared to become more and more frequent and severe in proportion to the degree of exhaustion; and for this reason, from their peculiar paroxysmal character, and because no direct or reflex exciting cause could be found (unless the dyspepsia or the slightly hypertrophied condition of the heart is considered sufficient), I am disposed to regard them as purely neuralgic.

X.—*Some cases of Albumosuria.* By Lee Dickinson, M.B., and W. K. Fyffe, M.B. *Read November 27, 1891.*

WE have the honour to bring before the notice of the Society twenty cases of pneumonia, or conditions allied to pneumonia, in which the urine contained an amount of albumose readily recognisable by such simple tests as are conveniently compatible with ordinary clinical practice. Our object is to show that albumosuria is of more frequent occurrence than is generally supposed, and to describe a method by which it can be readily demonstrated.

The cases were all essentially similar, so we give one only in some detail, and the others in an abbreviated form.

It has long been know that peptones, or bodies allied to peptones, are occasional constituents of the urine, and since the systematic investigations of Maixner* and especially v. Jaksch† it has appeared that the most frequent clinical associations of "peptonuria" are with suppuration and acute inflammation—in particular empyema and pneumonia.

At the time when these observers published their papers, little or no distinction had been drawn between the peptones and the earlier products of proteolytic digestion—the albumoses, and therefore no exception can be taken to their nomenclature; but since then much light has been thrown upon this branch of physiological chemistry, and we have no doubt that what was formerly described as peptone in the urine should at the present day be called albumose.

The old methods employed for the detection of "peptone" are far too elaborate and lengthly for ordinary use at the bedside, and in our experiments, we must repeat, we did not search for very small quantities, but only such as are obvious to hasty tests. It is from this reason probably that we have hitherto found a much smaller percentage of cases of albumosuria than did either Maixner or v. Jaksch.

For a period of rather more than six months we examined the urine of all cases of acute or serious disease admitted into

* *Prager Vierteljahrschrift für die Prakt. Heilkunde*, Bd. iii, 1879.

† *Prager med. Wochenschr.*, Nos. 7 and 9, 1881; *Zeitschr. für klin. Med.*, Bd. vi, 1883.

the medical wards of St. George's Hospital,* and in only ten (the first ten on the list) did we find albumose.

Subsequently we confined our observations chiefly to cases of pneumonia or where suppuration within the chest was suspected, and we met with ten more to be added to the list.

It may be worth while to state that among the cases examined were two of hepatic abscess (one of which was watched from its beginning), two others in which there was a large collection of pus within the abdomen, and nine of empyema (for the most part of some duration before they were admitted). The absence of the phenomenon in all of these is probably to be explained by the thickness of the membrane surrounding the pus, absorption from the latter being impeded. Cf. v. Jaksch, *Zeit. für klin. Med.*, 1883, vi, p. 413.

Our method was to test for proteids—(1) by boiling after slight addition of acetic acid; (2) by cold nitric acid; and (3) by the biuret test. In applying the last test we found it advisable, as Neumeister† has recommended, to so arrange that the pink colour may appear at the margin of a layer of urine, and thus escape obscuration by the urinary pigment. Since it is more convenient clinically to work with one test solution than with two, the ordinary procedure was slightly modified. The solution used was one of 20 per cent. caustic alkali in distilled water, to which enough sulphate of copper had been added to impart a faint blue tint, and this was placed at the bottom of a glass vessel four centimetres in diameter; upon the surface of this dense solution the urine was floated, and in those cases where a positive result was obtained a pink colour appeared at the junction of the two fluids.

There is one objection to the use of a ready-made mixture of alkali and copper. Occasionally after the ingestion of certain vegetable matters, especially rhubarb, the urine becomes red by the addition of alkali alone, and if the mixture be used this colour may be mistaken for that proper to albumose or peptone. When there is any doubt it is certainly better to add the copper separately, in the form of a very dilute solution upon the surface of the urine, previously treated with an equal volume of 20 per cent. alkali.

In almost all cases a certain amount of ordinary coagulable proteid was present, which was removed by boiling and filtration (without appreciably affecting the intensity of the biuret reaction), and then a more exact determination of the nature of the uncoagulable proteid could be made. To state the results briefly, *this proteid was always albumose and never true peptone*; that is to say, whenever there was a biuret reaction

* These cases included forty-four of pneumonia, seven of which ended fatally.

† *Zeitschr. für Biol.*, 1888.

there was almost always a characteristic albumose reaction with nitric acid, and in many specimens peptone was definitely proved absent by the complete precipitation of all proteid on saturation with ammonium sulphate. The point is not unimportant because of the highly interesting physiological properties which many albumoses have been shown to possess; and apart from any specificity of action, the ordinary albumoses of peptic digestion have a far more powerful effect than true peptones when injected into the blood of animals.*

With regard to the proportion of albumose in the urine of our cases we have not made any exact determinations, but we are able to state definitely that in some it was excreted in quantity which may be supposed quite sufficient to materially influence the condition of the patient while passing through the blood. In Cases 2 and 4 the proportion was certainly more than 1 and probably not less than 2 per cent., and this at a time when the urine was more abundant than natural.†

The albumoses with which we have met are proto- and deutero-albumose, and although in some instances the first variety was certainly largely present, and in others the second perhaps in not much smaller amount, it is better to draw no sharp distinction between the two, because the chemical reactions of the one merge into those of the other when the solutions are dilute.‡

From experiments upon animals it appears that the effects of injecting albumose into the blood are chiefly congestion of the portal tract, fall of blood-pressure, fever, narcosis, and modified coagulability of the blood; and it is very probable that clinically some such effects in a minor degree may accompany albumosuria, but we have failed to trace satisfactorily any of the graver symptoms in our cases to the passage of albumose through the blood. In all there was considerable fever, and in many diarrhœa; in Cases 1 and 16 the weakness of pulse during the excretion of albumose was noteworthy; and in Case 2 an alarming state of semi-coma followed a comparatively small dose of morphia.

Perhaps the most remarkable points brought out by a review of the cases are their severe character during the

* Pollitzer, "On the Physiol. Action of Peptones and Albumoses," *Journ. of Physiol.*, vol. vii.

† Some idea of the degree of concentration of albumose in the urine may be readily formed by comparing the intensity of its biuret reaction with that given by a standard solution (1 per cent.) of commercial albumose in equally high-coloured but proteid-free urine.

‡ Neumeister, "Ueber Albumosen und Peptonen," *Zeit. f. Biol.*, 1890.

primary fever, their high mortality, and the occasional serious sequelæ apart from the development of empyema. At the same time it is possible that *ceteris paribus* albumosuria should be regarded as a favourable indication, in view of the fact that in several most virulent and fatal cases of pneumonia with extensive hepatisation of lung this sign was absent throughout.

The origin of the albumoses in such diseases as we have dealt with is probably pus or at least inflammatory exudation. Hofmeister* long ago demonstrated what he called "peptone" in pus, and in several specimens of laudable pus examined by us there were large quantities of albumoses.

Dr. Sidney Martin,† in a report read at the meeting of the British Medical Association in 1890, described a case of empyema in which the amount of albumose was estimated in both the pus and the urine, showing that the amount in the latter varied inversely to the purulent discharge; and though we have made no quantitative estimation we can confirm Dr. Martin's observation as to the disappearance of albumose from the urine when pus is evacuated (Case 2).

It is probable that the albumoses are formed by the pyogenic micro-organisms, especially, as Dr. Martin suggests, by the staphylococcus pyogenes aureus; but there is some ground for supposing that the pneumococcus and the streptococcus pyogenes are at least equally powerful in the same way. Observations, however, upon this point may form the subject of a future communication.

Case 1.—Thos. L., æt. 24, a strong and healthy-looking man (though he had a mitral systolic murmur and considerable cardiac hypertrophy from rheumatism eight years before), was seized with severe stitch on the right side of the chest and a violent rigor, at 3 P.M., November 5, 1890. He was admitted into St. George's Hospital under the care of Dr. Whipham the same evening, with much pleural pain and a temperature of 101·4° F. Next morning, November 6, the pleural pain had been relieved by leeching, but he was evidently very ill. Respirations 51 per minute. Pulse 112, remarkably incompressible. Tubular breathing was heard at the posterior base of the right lung. The sputa were of a dark maroon-red colour. In the evening the temperature rose to 103·6°. The urine was lithatic, non-albuminous, and contained no albumose.

* *Zeitschr. für phys. Chemie*, 1880, p. 268.
† *Brit. Med. Journ.*, January 24, 1891.

November 7.—Prostrate, though quite sensible, complaining of great pain between the shoulders. Sputa rusty with a strong inclination to redness. Pulse weak and dicrotic, contrasting forcibly with the strong pulse of the previous day. Temp. 101·4°—102°. The urine was orange-coloured, and deposited abundant crystals of nitrate of urea on treatment with nitric acid. That passed at 5 A.M. contained a distinct trace of albumen and no albumose. That passed at 7 A.M. contained no albumen and a small quantity of proto-albumose. That passed at 10 A.M. contained no albumen and an increased quantity of proto-albumose. That passed at 10.45 P.M. contained a trace of albumen and no albumose.

November 8.—Some general improvement, though no crisis had occurred. The urine still contained a trace of albumen.

November 9.—Much improvement. Urine still slightly albuminous.

November 10.—Urine lithatic, non-albuminous.

November 19.—The man was discharged from the hospital, being quite well.

Case 2.—Alfred P., æt. 21. Rigor on July 1.

July 5.—Admitted under Dr. Ewart. Signs of double pneumonia. Sputa scanty and rusty. Urine non-albuminous and free from albumose.

July 8.—Sputa copious and purulent. Empyema suspected on left side, but exploratory punctures failed to find it.

July 9.—An alarming degree of coma followed the subcutaneous injection of one fourth of a grain of morphia.

July 10.—Urine slightly albuminous and loaded with proto-albumose. Peptone was proved to be absent by the precipitation of all proteid on saturation with ammonium sulphate.

July 14.—Copious expectoration of pus, and signs of pyo-pneumo-thorax on left side.

July 15.—Urine almost free from albumose.

July 16.—Signs of pericarditis. Urine free from albumose, and subsequently non-albuminous.

The man made a very lingering recovery, and on February 24, 1891, was still expectorating pus.

He was shown by Dr. Ewart and Mr. Bennett at the Medical Society on February 16 as a specimen of dexio-cardia.

Case 3.—Chas. A., æt. 61. Admitted on September 15 with pleural pain.

September 16.—Urine contained a trace of albumen and no albumose.

September 17.—Pleural pain very severe. Urine contained a trace of albumen, and gave good reactions of proto-albumose. Death occurred in the evening. Post-mortem.—Grey hepatisation of middle lobe of right lung. Lymph on upper surface of diaphragm and lower part of right pleura.

Case 4.—Henry P., æt. 39, a very intemperate man, was attacked by diarrhœa and stitch in the side on September 10, and admitted on September 13.

September 14.—Signs of pneumonic consolidation of the whole right lung. Urine contained a trace of albumen and a large quantity of proto-albumose. Peptone was proved absent by means of ammonium sulphate.

September 15.—Severe pleural pain on right side necessitating leeching.

September 17.—Violent delirium. Urine contained less albumose.

September 18.—Improving. Urine contained no albumose.

September 23.—Lysis had occurred. Urine free from albumen and albumose.

October 14.—Empyema had developed in the right pleura, and thoracentesis was performed.

November 4.—Discharged.

Case 5.—Elizabeth P., æt. 49, was seized by a violent rigor and great pleural pain on September 23, and admitted on September 26.

September 27.—Signs of pneumonic consolidation with pleural friction over lower lobe of left lung. Urine orange-coloured and lithatic, containing a trace of albumen and a distinct trace of proto-albumose. In the evening there was pleural friction on the right side.

September 28.—Urine contained a larger quantity of albumen and still a distinct trace of proto-albumose. Death occurred early on September 29. Post-mortem.—Copious recent lymph on both pleuræ. Copious fibrinous pericarditis.

Case 6.—Mary L., æt. 37, was admitted on October 16 with acute bronchitis and some pleural pain.

October 20.—Herpes labialis and high fever. Urine lithatic, containing a considerable quantity of albumen and a smaller quantity of albumose.

October 21 and 22.—Ditto.

October 23.—Some general improvement. Urine contained less albumose.

October 24.—Urine still albuminous, but free from albumose.

October 27.—Convalescent. Urine non-albuminous.

The albumose present in the urine of this case gave somewhat peculiar reactions. It was partially precipitated by saturation with sodium chloride after neutralisation; but it was not precipitated by nitric acid unless its solution was first saturated, or nearly so, with salt. In these points it resembled proto-myosinose.*

Case 7.—Walter R., æt. 22, was taken ill on November 5, and admitted, in a moribund condition, on November 10. No urine was obtained during life. Post-mortem.—Meningitis. Upper lobe of right lung in a state of grey hepatisation. Much lymph on right pleura. Urine (drawn off from bladder by syringe) contained a considerable quantity of albumen and a smaller quantity of (? deutero-) albumose.

Case 8.—Chas. H., æt. 35, was taken ill on December 27, and admitted on January 3 with delirium tremens and signs of resolving pneumonia at the base of the left lung.

January 4.—Urine contained a trace of albumen and a small quantity of proto-albumose. Rapid recovery.

Case 9.—John S., æt. 23, was taken ill on January 5, and admitted on January 8.

January 9.—Pleural stitch. Signs of early pneumonic consolidation of lower lobe of left lung. Urine slightly albuminous, and contained a small quantity of proto-albumose. Urine soon became normal. Ultimate recovery.

Case 10.—Annie M., æt. 54, was seized by a rigor on February 2, and admitted on February 5 with general bronchitis and pneumonic consolidation of upper lobe of left lung.

February 6.—Urine contained a considerable quantity of albumen, after the removal of which a distinct pink biuret reaction was obtained. No turbidity was produced by nitric acid, even after the addition of sodium chloride to saturation; but all proteid was precipitated by saturation with ammonium sulphate. Death occurred in the evening. Post-mortem.—

* Kühne and Chittenden, "Myosin und Myosinosen," *Zeitschr. für Biol.* Bd. xxv.

Upper lobe of left lung in a state between red and grey hepatisation.

Case 11.—William S., æt. 43, was admitted on March 9, and the following day was prostrate and semi-delirious, with signs of pneumonia at the bases of both lungs.

On March 10, 11, and 12 the urine contained a considerable quantity of albumen, after removal of which there was a slight proto-albumose reaction, and a strong one of deutero-albumose.

On March 13 the temperature had fallen to normal; the urine contained a trace of albumen and no albumose, and was afterwards non-albuminous. For the first week there was profuse diarrhœa; subsequently there were return of fever and delirium, and death on April 15. Post-mortem.—Ulcerative endocarditis. Gangrenous abscess cavity in lung. Vertical meningitis.

Case 12.—Susan H., æt. 55, had a rigor on March 6, and was admitted on March 8.

March 11.—Urine contained a considerable quantity of albumen, after removal of which there was a strong reaction of deutero-albumose. All proteid was precipitated by saturation with ammonium sulphate.

March 12.—Redux crepitus and tubular breathing over lower lobe of right lung. Urine still highly albuminous, but almost free from albumose. Good recovery.

Case 13.—John J., æt. 28, was admitted on February 12, after an accident in which some of his ribs were fractured.

March 2.—Pyo-pneumo-thorax had developed, and aspiration was performed.

March 3.—Temp. 104°. Urine (examined carefully for the first time) was albuminous, and gave a distinct proto-albumose reaction. Death occurred in the evening.

Case 14.—Caroline R., æt. 63, was admitted on April 6, which was the sixth day of an attack of pneumonia. The urine was densely lithatic, albuminous, and contained much deutero albumose. A crisis occurred during the night. Diarrhœa during April 6, 7, and 8. Convalescence was interrupted by insanity, erysipelas, and venous thrombosis in the leg. Death on April 20. No post-mortem examination.

Case 15.—George T., æt. 28, was admitted on April 5, the first day of an illness which was afterwards diagnosed as

double pneumonia and pericarditis. The urine was at first non-albuminous.

On April 9 it contained albumen and a small quantity of albumose, and death occurred. No post-mortem examination.

Case 16.—George S., æt. 38, was attacked by vomiting and diarrhœa on the evening of April 18, and was admitted on April 22.

April 23.—Tremulous, with some stitch on right side of chest, but no discoverable consolidation of lung. Sputa of a greenish rust colour. Urine contained a considerable quantity of albumen, after removal of which there was a slight biuret reaction.

April 24.—Diarrhœa. Weak pulse. Urine contained much deutero-albumose.

April 25.—Continuance of diarrhœa. Delirium. Urine contained less albumose. In the night the urine became almost free from albumose.

April 26.—Death occurred at 5 A.M. Post-mortem.—Mitral constriction. Middle lobe of right lung in a state of red hepatisation passing into grey; old fibrosis of lower lobe. The hepatised lung contained a trace of proto-albumose, and a much larger quantity of deutero-albumose.

Case 17.—Edward S., æt. 22, had a rigor on April 29, and was admitted on May 1 with solidification of lower lobe of left lung. The urine was slightly albuminous, and gave a brilliant biuret reaction.

May 2.—Sputa deeply rusty. Bowels loose. Urine contained deutero-albumose.

May 3.—Fresh pleural pain on left side.

May 5.—Bowels still loose. Strong biuret reaction in urine. Died at night. Post-mortem.—Grey hepatisation of lower lobe and posterior part of upper lobe of right lung. Red hepatisation of lower lobe of left lung. Much lymph on both pleuræ. Recent pericarditis.

Case 18.—Joseph H., æt. 38, an intemperate man, was seized by pain across the chest on May 3, and was admitted on May 5 with no physical signs of pneumonia. The urine was slightly albuminous, and contained a large quantity of deutero-albumose. Bowels loose.

May 6.—Urine contained much less albumose. Acute mania in the evening.

May 7.—Died after twenty-four hours of mania. Post-mortem.—Red hepatisation of right lung from base nearly to apex. This lung contained proto- and deutero-albumose.

Case 19.—William S., æt. 49, was taken ill on May 10, and admitted on May 15. He was then severely ill with pneumonic consolidation of the lower lobe of the right lung and pink sputa. Urine albuminous, but free from albumose.

May 16.—Urine gave a fair biuret reaction due to (? deutero-) albumose, all proteid being precipitated by ammonium sulphate.

May 17.—Crisis had occurred. Urine still gave a slight biuret reaction.

May 18.—Urine still albuminous, but almost free from albumose. Urine subsequently non-albuminous, and free from albumose. Good recovery.

Case 20.—Frank C., æt. 21, was admitted on April 6, the fourth day of illness, with high fever; no physical signs of pneumonia, but red sputa.

April 7.—Sputa bright red. Urine non-albuminous, and free from albumose.

April 8.—Sputa rusty. Pneumonic consolidation of whole of left lung. Urine slightly albuminous, and contained a considerable quantity of deutero-albumose.

Urine subsequently normal. Good recovery by April 29.

XI.—*Sequel of a case of Traumatic Aneurysm of the Spine.* (*Continued from Vol. xxiii*, 1890, *p.* 725.)

By W. G. Spencer, M.S. *Read November* 27, 1891.

I DESCRIBED, in the twenty-third volume of the Society's *Transactions*, the case of a man æt. 58, who fell from a scaffold thirty feet high, and sustained a fracture-dislocation of the spine at the junction between the dorsal and lumbar vertebræ, the fracture being apparently at first firmly impacted. The man came under my care in August, 1889, that is, thirteen months after the accident, when I found an aneurysm on either side of the angular curvature. Pulsation could be felt from the tenth rib to the third lumbar vertebra, and from four to six inches from the middle line outwards on either side of the spine behind. Repeated examinations failed to detect any abnormal abdominal pulsation, nor any signs of obstruction to the abdominal aorta. But he suffered great pain from pressure upon the nerve roots involved. There was no paraplegia. On several occasions after slight exertion he had attacks of hæmaturia, passing clotted blood, but as a rule the urine was normal. He had also at the bifurcation of the left carotid what appeared to be a fusiform aneurysm, about $1\frac{1}{2}$ inch in diameter.

Through the kindness of Dr. Melsome I was able to keep the patient under observation in the Chertsey Infirmary. He continued in great pain without any abdominal pulsation nor signs of peritonitis becoming evident, and died on December 18, 1890, two years and eight months after the accident.

On making a post-mortem, I found the lower limbs were not especially wasted. The lungs were normal except for some old pleural adhesions. The patient was emaciated, but there were no bed sores. On opening the abdomen no fluid nor blood was found in the peritoneal cavity nor adhesions, except that the right lobe of the liver was partly adherent to the inner surface of the ribs. The abdominal cavity was extremely shallow, having the thin-walled stomach and intestine spread out in front of a black mass, which encroached upon the cavity from behind. This black mass, composed of organised and unorganised blood-clot, extended from the

diaphragm to the pelvis, covering all the organs lying behind the peritoneum, and infiltrating the mesentery down to the mesorectum. To expose these structures and the wall of the aneurysm, layers of the altered clot from an inch to two inches in thickness had to be dissected off. The remains of the back muscles between the wall of the aneurysm and the skin behind were also infiltrated with blood-clot. The spines and laminæ, when removed, exposed the uninjured spinal cord and cauda equina.

The pathological specimen consists—

(1) Of the last dorsal and four lumbar vertebræ, with a large aneurysm on either side behind the abdominal aorta.

(2) The heart, thoracic aorta, and carotids.

(3) The kidneys, ureters, and bladder.

(4) Calculi.

(1) At the back of the specimen an angular prominence projects into the spinal canal from the front, at the junction of the last dorsal with the first lumbar vertebra. This marks the position of the fracture dislocation. Below this the posterior common ligament forms the back wall of the aneurysm, the bodies of the first and second lumbar vertebræ having been extensively destroyed; the ligament is thickened, but the spinal canal has not been actually invaded. On either side of the spine the aneurysm bulges further back than a plane drawn vertically through the spinous processes. Several small secondary sacs had extended between the wasted lumbar muscles which communicate with the primary sac, especially two; one on either side external to the articular processes and between the transverse processes of the first and second lumbar vertebræ. When looked at from the front the large aneurysmal sac appears like an exaggerated horse-shoe kidney, the left side being larger than the right, and the portion of the sac uniting the two comparatively narrow in the front of the spine. In front of the aneurysm is the abdominal aorta irregularly dilated from its passage through the diaphragm to the origin of the renal arteries, after which it is normal. The sac is connected with the back of the abdominal aorta, where the latter is dilated. Below this the thickened anterior common ligament forms the front wall of the sac in the middle line, whilst at the sides the front wall has been formed by the lumbar fascia. The formation of the front wall of the aneurysm by the anterior common ligament and by the lumbar fascia is shown also by the course of the

lumbar arteries in curving round the vertebræ and entering the sac. The cœliac axis was found in the midst of dense tissue, the result of extravasated blood, obliterated and shrunk to a small size. The superior mesenteric was, on the other hand, much dilated, but the renal arteries unaffected. The large cavity of the aneurysm was bounded above by the diaphragm, was partly empty, partly filled with recent clot, and in some of the loculi with decolourised clot. Most of the loculi have their inner wall rough and ragged, whilst some have a perfectly smooth lining membrane. The sac-wall varies in thickness from a $\frac{1}{4}$ to $\frac{1}{2}$ inch, through which blood has been extravasated, at many points, into the retro-peritoneal tissues. The bodies of the last dorsal and upper three lumbar vertebræ have been partly destroyed, especially the first two lumbar which have been perforated, so that the posterior common ligament forms the back wall of the sac. The communication with the back of the aorta is by an opening about $1\frac{1}{2}$ inches in diameter opposite the cœliac axis and the origin of the first lumbar arteries.

(2) The heart is much dilated, 20 oz. in weight, and with the pericardium universally adherent to the arch of the aorta dilated and atheromatous. The bifurcation of the left carotid, where they appeared to be a fusiform aneurysm during life, is perhaps larger than normal, but there is no great difference between it and that on the right side, where there was nothing abnormal to be felt during life.

(3) The kidneys, although pushed downwards and forwards and buried in a thick layer of extravasated blood and inflammatory tissue, which was closely adherent to the capsule and pelvis, appear fairly normal, the left kidney and ureter containing about 2 dr. of sand composed chiefly of urates. The bladder, after being dissected out from a mass of inflammatory tissue which filled the pelvis behind the peritoneum, is seen to have two sacculi, and contained two stones composed chiefly of phosphates around blood-clot.

The case, therefore, is an exceptional one, in that an aneurysm situated behind the abdominal cavity was produced by a fracture-dislocation of the spine. It must clearly have originated in an extravasation of blood between the muscles on either side of the spine behind the anterior common ligament and the lumbar fascia. The connection with the abdominal aorta may have arisen in two ways; either by the primary rupture of lumbar arteries and a secondary involvement of the aorta, or the aorta may have been so far diseased

before the accident as to have become adherent to the anterior common ligament, and so at the accident the posterior wall of the aorta was only torn where adherent to the ligament. From the course of the lumbar vessels in relation to the sac-wall the former hypothesis would seem the most likely, as was suggested in the former communication. In either case the aneurysm was behind the lumbar fascia, hence the absence of all abdominal pulsation.

The occasional hæmaturia was, it seems, due to the extravasating blood in the retro-peritoneal tissue communicating with the pelvis of the kidney.

Several cases have lately been shown at the Society, or described elsewhere, of small aneurysms about the bifurcation of the carotid. In this case the condition was due to an absence or atrophy of structures covering the left carotid bifurcation, and remained quite stationary during the rest of the man's life.

The specimen is preserved in the Westminster Hospital Museum.

XII.—*A case of Extroversion of the Bladder.* By William Anderson, F.R.C.S. *Read November* 27, 1891.

THE patient, W. T., a boy, aged 10, was admitted into St. Thomas's Hospital with congenital extroversion of bladder in June, 1890.

The appearances were of the ordinary type. The bladder showed itself as a hemispherical tumour, about the size of a large orange, filling the space between the imperfectly developed penis and the point normally occupied by the umbilicus: the mucous membrane of the upper third of the protrusion had for the most part assumed the aspect of a thin cicatricial tissue, owing to a modification in the character of its epithelium, but below this it was red like a granulating sore, and presented several patches of excoriation and two small hernial protrusions. The ureters opened about three fourths of an inch above the rudimentary penis, and with the aid of a probe the canals could be traced, running first backwards, then upwards by the side of the rectum. The pubic bones, terminating anteriorly in pointed extremities, were separated by a distance of about three inches; while the width between the anterior superior spines reached ten inches. The scrotum was empty and the testicles could be felt in the groins, the left somewhat larger than the right. There was no hernia, and the abdominal walls were not defective, except at the seat of the extroversion.

The patient was a good-looking lad but small for his age, slightly pigeon-breasted, and of somewhat retarded intellectual development. His gait had the usual waddling character dependent upon the wide unfolding of the ossa innominata, and he suffered much from the irritable condition of the protrusion and from the constant leakage of urine, which no receptacle could be devised to collect. The details of his family history were difficult to ascertain, but it is stated that his father and mother both died of phthisis, and that his only brother was lame, apparently from some joint disease.

The case having been placed in my hands through the kindness of my colleague Sir William MacCormac, I determined to carry out a plan of operation suggested by my

friend Mr. H. Milton, of Cairo; and although the result was ultimately disappointing, I propose to describe the procedure in detail in order that the causes of failure may be understood.

Chloroform having been administered, it was found that with the onset of complete muscular relaxation the extroversion sank back into the pelvic cavity, until the viscus was represented by a cup-like hollow between the two recti (Pl. I, fig. 1). The finger of an assistant was then passed into the bowel and pressed forward in such a way that it could be felt from without, and so formed a guide of some value in the course of the operation. This done, a curved incision was made all around, immediately within the margin of the open bladder and urethra, extending through the mucous membrane and as far into the muscularis as appeared safe. Flaps of these tissues were dissected up for about half an inch from without inwards, one on each side, until it was found that their free margins could be made to meet without tension. After the introduction of an elastic catheter (No. 10) the flaps were joined by a double row of stitches, an inner set of fine catgut, uniting the edges of the mucous membrane, an outer of silk, applied after the manner of Lembert, to the adjacent muscularis. The union when complete resulted in the formation of a pyriform vesico-urethral cavity, which was proved by experiment to be capable of holding an ounce and a half of milk without leakage (Pl. I, figs. 2 and 3).

The next step was the dissection from within outwards of two marginal skin-flaps; and after relieving tension by two lateral incisions, carried down to the deep fascia opposite the outer borders of the recti, the edges were brought together over the closed bladder by means of wire sutures and two hare-lip pins. The catheter was tied in and the surface was dressed with iodoform gauze and salicylic wool. The patient, who had borne the prolonged operation exceedingly well, was put to bed in a semi-recumbent posture.

All went on favourably during the two following days; the temperature remained normal, the urine escaped freely by the catheter, and the dressings kept dry. On the afternoon of the third day, however, he was seized by an attack of diarrhœa, an epidemic of which had just appeared in the large ward adjacent to his room, and the temperature rose to 100°. No local disturbance was observed, except a diminished drain from the catheter; but the following morning, the fourth, the dressings were found saturated

with urine, and on removing them it was seen that a leakage had occurred. The skin-flaps were laid open, revealing the subjacent space filled with urine and muco-pus, and two of the vesical sutures had yielded. The catheter had become completely inefficient, and when withdrawn was found blocked with mucus and phosphatic deposits. A new instrument was introduced in the hope that the bladder-rent might remain limited; but the mucus persistently intercepted the urethral drain, and during the next two days we had the chagrin of watching stitch after stitch give way till the whole of the line of union had broken down, and the prolapse had become restored.

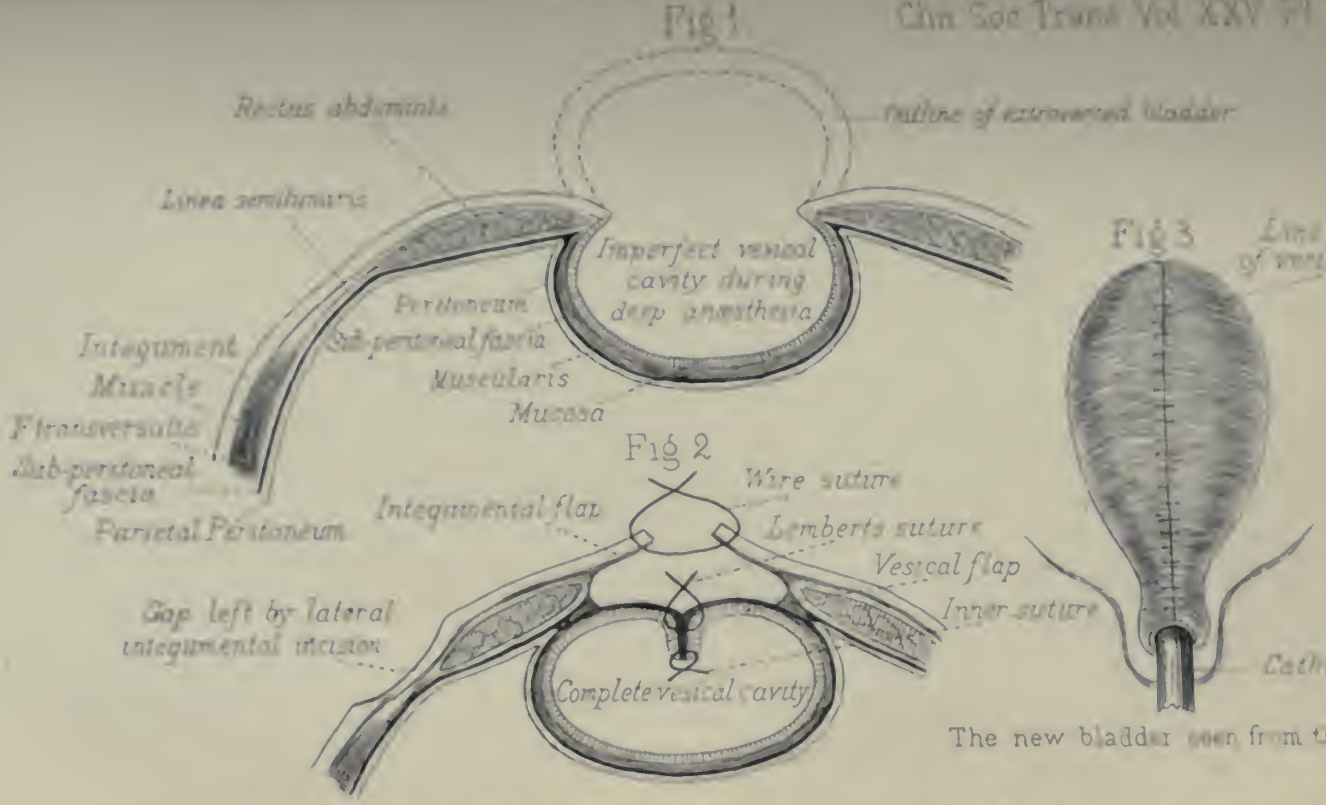
The effort appeared to have so nearly attained success that it was repeated in a modified form eight weeks later. On this occasion the operation was confined to the vesico-urethral wall, leaving the integumentary flaps for a subsequent stage, and a preliminary urethral drain was established by a perineal aperture, through which the catheter was passed. Again all went on well for a time, but on the third day the escape of urine ceased, and the flow through the catheter was intercepted by the dense vesical mucus, which defied all attempts to expel it by injection. The same inexorable breaking down of the surgical line of union followed, and the prolapse once more presented itself, leaving a condition not materially better or worse than before the treatment was commenced.

On looking back at this disappointing termination it is evident that the success of the operation was opposed by two circumstances: firstly, by the impracticability of maintaining free and continued drainage of urine, owing to the viscidity of the mucus secreted by the newly formed bladder; and secondly, by an insufficient vitality of the thin muco-muscular flaps. There is little doubt, however, that it was the former rather than the latter factor that determined the misfortune, and as it is possible that in other cases this evil might be less insurmountable, there may still be a future for the measure, especially as the sequel to this case proves that the endeavour does not impair the prospects of a subsequent plastic operation.

On November the 7th a different plan of treatment was adopted. The mucous membrane was dissected from the upper half of the bladder, a somewhat tedious process; two flaps were then detached from the abdominal integument (down to the fascia), one on each side as in the accompanying diagram (fig. 11), and brought together in the middle

DESCRIPTION OF PLATE I.

To illustrate Mr. Anderson's Case of Extroversion of the Bladder.



Diagrams showing principle of Vesico-plastic operation

Dieselbeck & Co. sculp.

line by sutures over the raw submucous tissue just prepared for their reception; their upper and lower edges were

Fig. 11.

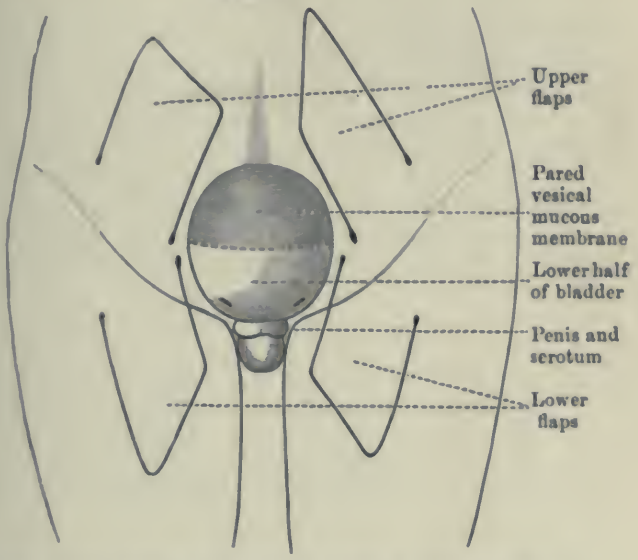


Diagram showing extent and position of flaps in cutaneo-plastic operation.

finally united by thin catgut to the cut edge of the vesical mucous membrane below, and to the freshened cutaneous margin of the prolapse above. In this way the upper half of the bladder was permanently obliterated, the flaps uniting in their whole extent by first intention to the surfaces presented to them. A month later (December 5th) the preparation of flaps for the lower part of the bladder was commenced. Two strips of integument, extending from the level of the middle of the bladder on each side downwards across Poupart's ligament for a short distance on to the thigh, were raised from the fascia, except at their extremities, where they were left attached. A piece of oiled silk was passed beneath each, and the wound was thickly smeared with a protective layer of iodoform and vaseline. At the same time the left testicle was removed, the right being spared on account of the uncertainty as to the relation of its tunica vaginalis with the peritoneum. Six days afterwards

the wound was attacked by erysipelas, and for five weeks the boy remained very ill. Fortunately, however, the flaps retained their vitality, and on February the 19th it was judged safe to detach their distal ends. Two weeks more were allowed for the cicatrisation, already well advanced, to extend over the greater portion of the deep aspect of the band, and then the lower half of the bladder was covered in by the union of the two flaps in the middle line, and the junction of their pared upper margin to the freshened lower margin of the first pair of flaps. This was successful, and a final operation was undertaken on May the 25th to bring the lower edge of the inferior flaps into union with the integument over the sides of the cleft corpora cavernosa in such a way as to leave a short urethra. This

Fig. 12.

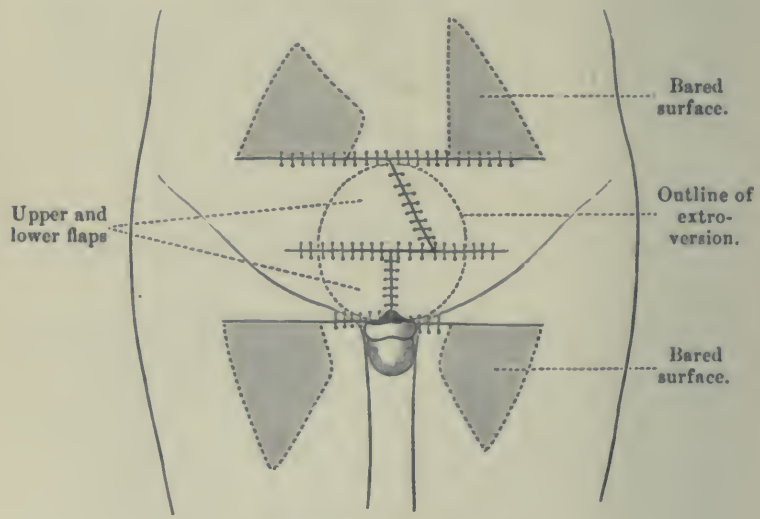


Diagram showing flaps *in situ*.

measure also succeeded, and at the close of a fortnight the result was complete (Pl. II). The bladder was well covered in, and the urine escaping from the end of the penis could be collected by an ordinary apparatus; locomotion was greatly improved, although the swaying dependent upon the peculiar conformation of the pelvis necessarily persisted; and the general health

DESCRIPTION OF PLATE II.

To illustrate Mr. Anderson's Case of Extroversion of the Bladder.

From a photograph taken shortly after the completion of the final operation. The protrusion and overhanging aspect of the new vesical wall have since almost entirely disappeared.

The widening of the pelvis and the forward displacement of the shoulders are well brought out in the picture. The latter is apparently due to the patient's constant efforts before the operation to carry the clothing away from the sensitive prolapse, and is now (February, 1892) scarcely perceptible. It has been noticed in other cases.

Danielsson & Co., Photo-print.

had become better than at any previous time. A strong elastic bandage is now worn around the hips in the hope that it may prevent increase in the interpubic cleft, and already the distance between the iliac spines is reduced by half an inch, although the boy has grown in height since the operation. He says he is able to walk for at least an hour without fatigue.

This method differs from that of Professor Thiersch in two respects: firstly, in the immediate transplantation of the flaps over the prepared upper half of the extroversion, a step which helped to shorten the period of treatment; secondly, in the use of four short flaps instead of two long ones, by which the risk of gangrene was diminished. The preliminary cicatrisation of the deep surface of the lower flaps was a further gain, but a little time was required to secure it. The total duration of treatment under the cutaneo-plastic method was somewhat less than seven months, and it might have been reduced considerably, probably to three months, had it not been for the severe intercurrent attack of erysipelas and the long-standing enfeeblement to which this illness gave rise. It may be noted that the operations themselves induced very little constitutional disturbance.

Both Thiersch's plan and this appear to have two distinct advantages over the duplicated flap operation of Wood: firstly, that there is a much smaller demand upon the integument, and consequently less immediate risk from shock and exhaustion, and less prejudice to subsequent measures in the event of failure; and secondly, that the patient is freed from the danger of vesical irritation which the growth of hair from an inverted cutaneous surface would be likely to induce at a later period.

The patient was, of course, too old for Trendelenberg's operation upon the sacro-iliac synchondrosis, but even had it been feasible it does not appear certain that the interference with the pelvic girdle would have offered any advantage proportionate to the risk incurred.

XIII.—*A case of Mycosis fungoides of Alibert; Granuloma fungoides.* By P. H. Pye-Smith, M.D., F.R.S. *Read December* 11, 1891.

JOHN B., a large, heavily built man, æt. 66, was admitted into Guy's Hospital on January 17, 1891. He had then for some time been subject to a common superficial dermatitis, somewhat patchy, dry, and from its anatomy, locality, and course, such as would by most dermatologists be admitted as eczema.

It occupied the chest and part of the abdomen and back, smaller patches on the neck, face, and forearm, and more extensive scaly surfaces on the legs below the knee. There was considerable thickening of the skin, with subcutaneous œdema. This condition had lasted for several months, probably for nearly a year, but as it was neither painful nor constantly irritable, the patient had taken little notice of it.

During the last few weeks, however, localised swellings had appeared, indolent in that they were unaccompanied by fever and did not affect the general health, somewhat slow in development, going on to suppuration, with the gradual production of exuberant granulations. The earlier ones were said to have begun in accidental excoriations.

One of these swellings was on the upper eyelid, another was in the right lumbar region, and a third over the spine of the left scapula.

When the mass of exuberant granulation-tissue was once formed, scarcely any pus was secreted, but a large amount of clear, colourless, watery liquid exuded, sometimes in such quantity as to soak through the dressings, the patient's linen, and the bedclothes.

Some of it was with considerable difficulty collected pure, and was found to be of very low specific gravity. It contained a moderate amount of albumen, was colourless, alkaline, and contained chlorides. Under the microscope very few leucocytes were seen.

Most of the tumours after long and slow growth developed a central slough, with renewed suppuration, and after this had been thrown off they slowly healed. In the hospital more than one of the tumours went through this process, and thus disappeared, leaving only a superficial scar. But

DESCRITION OF PLATE III.

To illustrate Dr. Pye-Smith's case of Mycosis Fungoides.

A recent granuloma is shown on the upper eyelid, and another which has destroyed the eyebrow. The bald patches on the scalp are cicatricial, as is also the pale smooth patch on the temple. The skin of the cheek and neck is in a state of chronic dermatitis, with thickening and desquamation.

the one on the back steadily increased in size until it was as large as a fist; and then for the first time patient's health began to suffer. We endeavoured to hasten the sloughing process by injecting chromic acid into the centre of the fungoid mass (March 10), and the advisability of removing it by the knife was discussed. Whether this operation would have delayed the result is doubtful, for the patient's appetite and strength suddenly failed on the 14th, and he became delirious with moderate rise of temperature (99°—101° F.) A pustular hæmorrhagic eruption appeared on the face, and on the lower extremities both above and below the knee, accompanied by redness and swelling not unlike that of erysipelas. The temperature became subnormal, and the patient died on March 30, in a state of quiet delirium, from failure of the circulation.

Autopsy (the same day).—On examination after death the body was still that of a stout well-nourished man.

The skin was almost normal in appearance, except for the large tumour on the back, which measured 6 inches in diameter and 2 inches thick. The smaller ones had disappeared, and one over the scapulæ was only represented by a firm scar.

The heart weighed 15 oz., the valves were normal, except for a patch of atheroma in the posterior mitral curtain, and the muscle was healthy. The pericardium was partially adherent.

There were extensive adhesions of both pleuræ.

The lungs were bulky and œdematous. There was a patch of gangrenous pneumonia in the right middle lobe, and there were spots of hæmorrhage in several places. No tubercle, either recent or obsolete, was present.

The spleen was pale, of normal consistence, and with a thick capsule.

The liver weighed 89 oz.; it was fatty, with increase of fibrous tissue, in a state of early cirrhosis.

The pancreas was healthy, as were also the kidneys and bladder.

The brain and cord were both normal.

The left adrenal body was normal, but the right was converted into a large, smooth, white tumour which weighed 4½ oz. No trace of normal structure could be found.

Externally and on section the diseased organ looked like a sarcomatous growth. It was firm and fleshy in consistence, nearly uniform throughout, pale in colour, and exuded no milky juice. Here and there only, lines or

patches of congestion varied the section, and there were several small opaque patches, evidently due to caseous degeneration.

Microscopic examination showed that the tumour of the skin consisted of leucocytes, small and uniform in appearance, with very scanty intercellular stroma; the tissue was thus agreeing with Virchow's definition of granuloma. The diseased adrenal presented a similar appearance, but some sections had better developed and more abundant intercellular fibrous tissue so as to resemble a lymphoma, and others might be fairly described as showing the structure of a small round-celled sarcoma.

During life, and also after death, the discharge from the tumour and portions of its tissue were stained and carefully examined for bacteria, but none were found; and cultivations made by Dr. Washbourn had a negative result.

This rare and remarkable disease was first described and figured by Alibert, who gave it the unfortunate name of Mycosis fungoides, which I have only used because it has been used before. It is scarcely necessary to remark that the name has no reference to microscopic fungi or microphytes. Alibert meant by it to describe a mushroom-like form (*Mycosis*), and the resemblance to fungus hæmatoides or the fungating masses of soft vascular cancer (*fungoides*). The term granuloma has been adopted by Auspitz and by other writers, including Dr. Payne in his paper reprinted from the 'Path. Trans.,' vol. xxxviii.

The characters of the malady are now well known. It begins in a dermatitis with considerable thickening of the skin, undistinguishable from chronic eczema, and usually of the squamous kind. After a variable period, sores or scabs appear which, instead of healing, form masses of exuberant granulations. These slowly increase in size until they become large fungoid growths. Sloughing, suppuration, and healing may occur, but fresh tumours form and the progress of the disease is ingravescent. Only two or three cases of recovery are on record.

The blood is in most cases normal, the lymph-glands unaffected, and the internal organs healthy. The primary eczema is usually irritable, but the itching is no worse than in ordinary cases of this disease. My patient believed that the excoriations which developed into tumours were the result of scratching.

The fatal event appears not to be due to albuminuria or to

excessive fever, but to a kind of marasmus, like that which closes cases of pemphigus foliaceus, pityriasis rubra, and other severe and long-continued inflammations of the skin. Whether the tumours are lymphoma, as the French writers consider them, or granuloma, as is generally held in Germany, or sarcoma, or whether they are a distinct and specific kind of new growth is still a matter of debate.

The profuse exudation of clear serum from the tumours does not seem to have been observed before.

The presence of a secondary growth in internal organs is, so far as I know, unique. It shows that under some conditions the disease is infective, but this property is common to local inflammations and to new growths. We may compare the growth in the adrenal to a "metastatic" abscess in pyæmia, to an internal gumma in syphilis, or a secondary cancerous growth. The histology and clinical features of the primary disease bring it into close relation with the other granulomata—tubercle, syphilis, leprosy. One would expect to find some specific microphyte, but in this case, as in the majority of others, none was found.* Like the other granulomata, mycosis fungoides forms a link between chronic hypertrophic inflammation and new growths; it seems to be less closely allied to lymphoma than to the three diseases mentioned above, and comes closer in structure to some forms of sarcoma than any of them. But, clinically, it is very distinct from multiple sarcoma of the skin. Its origin in long continued, ordinary inflammation may be compared with that of carcinoma mammæ in Paget's disease of the nipple, of carcinoma linguæ in leucoplacia of the tongue, and of Kaposi's disease in freckles and nævi.

The therapeutical interest of the case lies in the partial involution which some of the tumours went through, for we may hope by better devised means to bring this about before the disease has become general.

* Hochsinger's discovery of what he believed to be specific staphylococci in a patient of Prof. Auspitz, and that by Rindfleisch of streptococci, do not agree in details; and the elaborate investigation, microscopic as well as by cultivation, undertaken by Dr. Payne were entirely negative (*Observations on some Rare Diseases of the Skin*, 1880, pp. 24—27). The same negative result has since been reached by Prof. Köbner, of Berlin.

XIV.—*A case of Epilepsy in which eighty-six needles have been extracted from different parts of the body.*

By H. Charlton Bastian, M.D., F.R.S. *Read December* 11, 1891.

In the early part of the present year I received from Dr. James Merryweather of Guisborough a packet of forty-five needles and one pin, which, as he said, had been "extracted by the nurse and matron of this workhouse from the body of a woman suffering from epilepsy." Two months afterwards a further parcel of thirty-four needles, extracted during the intervening period, was received. Subsequently six others have been sent, and I am informed that fourteen are still to be felt in different parts of the body of this remarkable patient, making a total of 100 needles and one large pin. Of these needles, seven are very large—one of them being 3¾ inches long, while six others range between 3½ and 3¼ inches—the remainder being between 1½ and 2 inches in length. I am informed that all the eighty-six needles and the one pin that have been extracted have been removed either by one of the persons above named, by the doctor, or by the patient herself in their presence. They are now submitted to the inspection of the Society.

Some notes as to the antecedents of this patient were kindly sent to me by Dr. Merryweather's assistant, Dr. A. Oxley Wilson, and this gentleman has also been kind enough to reply to numerous further inquiries which I have made, so that I am now able to submit the following account of this remarkable "needle-cushion" patient, as Dr. Merryweather terms her.

M. A. B., æt. 55, spinster, was admitted into the Guisborough Workhouse in November, 1886. She is an epileptic who began to have fits "in early childhood," and has had them at variable intervals ever since. There is no definite neurotic history to be obtained, though her statements made at different times are somewhat contradictory.

She began to menstruate when she was thirteen, and ceased to do so when she was forty years of age. She left home when nine years of age, and has had four children, all of them being now alive and healthy. She has been twice an

inmate of an asylum—once "when very young" at Sedgefield for six months, and once at York "for a short time" when she was about twenty-five years old.

Now she is described as "fairly intelligent," but she has fits of bad temper in which she will not take food, and refuses to do anything except ordinary knitting. She is sometimes cheerful and talkative, at others spiteful and rude in her language. She has no morbid appetites, and her conduct to others has on the whole been satisfactory since her admission.

The epileptic attacks to which she is subject vary much in frequency; she sometimes has several daily, and rarely passes a day without a fit, three or four a week being the smallest number noticed since her admission. They commence abruptly and without warning, and there is complete loss of consciousness for ten to twenty minutes. During the attack she becomes perfectly rigid all over, and about equally so on the two sides; the hands are clenched, and there is twitching of the eyelids. She recovers quickly, and complains of stiffness in the limbs and pain in the eyeballs. Nothing like a post-epileptic automatic state has ever been noticed.

During the time she has been in the workhouse she has mostly done sewing, darning, or knitting; and before needles were found in her body she often had packets of assorted needles in her possession. Afterwards they were kept out of her reach as far as possible.

Needles were first noticed in her body in September, 1887; that is, after she had been in the workhouse about twelve months. As before stated, as many as thirty-four were removed during a period of two months in the present year; sometimes three have been removed in one day. No needles have ever been recognised in, or removed from, the right half of the body.

From the nurse's statements and from examination for cicatrices, it seems that needles have appeared from the following places:

1. One expelled from mouth during a fit of coughing. (None have been passed *per anum*.)
2. One from neck over cricoid cartilage.
3. One from left supinatus longus muscle below flexure of elbow.
4. Numerous needles from left hypochondriac, lumbar, and iliac regions.
5. One from left erector spinæ near iliac crest.

6. Several from left buttock.
7. Several from left thigh, all aspects, and from knee.
8. A few from front of left leg.
9. One from dorsum of left foot near first metatarso-phalangeal joint.

Needles are sometimes to be felt in certain parts of the thigh which subsequently disappear. They have frequently been known to shift their position in this way. No abscesses have ever occurred in connection with the presence or passage of any of the needles. A small red spot appears at the point where the needle is about to emerge, and afterwards a small white scar is left. No extravasations of blood have ever been noticed from wounding of vessels during the transit of needles.

In answer to my question whether hemianæsthesia exists on the left side of the body, Dr. Wilson says that on testing the woman her replies were not satisfactory, being sometimes contradictory. But she did not seem to feel a pin-prick as such on either side, though she perceived and could localise touches equally well on each side of the body. No history could be obtained of previous left hemianæsthesia.

She has not been confined to bed during her stay in the workhouse except for short periods, when the fits have been very frequent. She has never been seen passing needles into her body, but once she was found trying to remove a superficial needle with a pin. There is no reason to think that she has ever passed needles into her body after the fits, nor is she particularly odd in manner after the attacks. She has never been known to swallow needles, and no lucid statement can be obtained from her as to how the needles get into her body. She once stated in explanation, that she had been "covered with mustard plasters," and that these had been "fastened on to her body by means of needles." No truthful statements can be obtained from her.

She has never complained of any pains, except slight irritation and tenderness over needles when they are moving or about to come through the skin head-first, as they do almost invariably. Then they sometimes cause a little inflammatory redness with some surrounding induration.

Writing on October 15, Dr. Wilson says: "I examined again carefully for needles yesterday. I felt and extracted one from the situation above-named (from the lower third of leg). I felt two more on the front and inner aspect of the

leg, about three inches below the knee. Three were felt above these on the inner side of the thigh; and five still higher up and pretty close together on the inner side of thigh. Four were felt on the outer side of the thigh, one being large and surrounded by an inflammatory area, so that it feels almost like a pencil. I also noticed numerous red spots at places where needles might have been inserted."

This case is certainly a very remarkable one, seeing that the woman is far from being demented, that she is not to any notable extent hemianæsthetic, and that nothing like post-epileptic automatic states have ever been recognised, during some of which she might have pushed the needles into various parts of her body. Nor does it appear that there was anything to be gained by the patient thus torturing herself during her residence in the workhouse.

It is surprising, too, that such a number of very large needles could have been pushed in and should have made their way through different parts of the body without injuring any large vessels or nerves, and without causing a single abscess or, apparently, any very great amount of inconvenience.

Note.—After this communication was made to the Society, a paper was read before the Medical Society of the County of Albany, U.S., February 10, 1892, by Dr. J. D. Craig (who has kindly sent me a reprint), on a "Remarkable Collection of Foreign Bodies in the Stomach," in which he gives some details concerning a woman, an inmate of an asylum, as to whom he writes:—"Two hundred and eighty-six needles were taken from the body during life, three were passed from the rectum during sickness, and eleven were taken from the tissues after death."

XV.—*A case of Rapid Heart.* By F. O. Buckland, M.B. *Read December* 11, 1891.

VIOLET A., æt. 11, first came under my observation in January, 1890, on account of palpitation, shortness of breath, and fainting on comparatively slight exertion. On one occasion when hurrying upstairs she became giddy, fell, and could not rise for three or four minutes. Attacks of palpitation had been frequent for five or six years. The child was fair, thin, precocious, and extremely excitable.

The father is a general paralytic, and the maternal grandmother is insane. There have been no previous illnesses of note.

Development was good, the chest well formed, and there were no obvious morbid appearances beyond undue pallor. The apex beat was in its normal site, the cardiac impulse forcible, but jerky and irregular, and the area of dulness showed no increase. With the stethoscope the disorder of rhythm was readily detected, but no murmur could be heard. The pulse was 80, irregular, fairly full, compressible, and with three or four consecutive beats, in every eight or ten striking the finger with considerable force.

The citrate of iron and ammonium, with sal volatile and spirit of chloroform was prescribed, and a visit to the country recommended. The patient returned from Kent in about three weeks, and on two or three examinations no irregularity of the cardiac action was detected, nor was any palpitation or distress experienced on running.

On March 27 she developed measles which ran a usual course with very mild chest symptoms till April 2, upon which day, at about 8 P.M., the heart suddenly began to beat at the rate of 215 per minute. There was pallor, distress, and shallow respiration, 24 per minute. On palpation, the agitation of the heart was very marked, and the impulse was felt to be good. The sounds were loud and pure. The pulsations in the radial artery could not be counted; the vessel seemed to be persistently full, not easily compressed and vibratory. The next morning the pulse was 96, irregular, one beat in every four or five being slow to follow. All went well till April 9, upon which day the temperature rose from normal to 100°, at which point it remained till the 14th. On

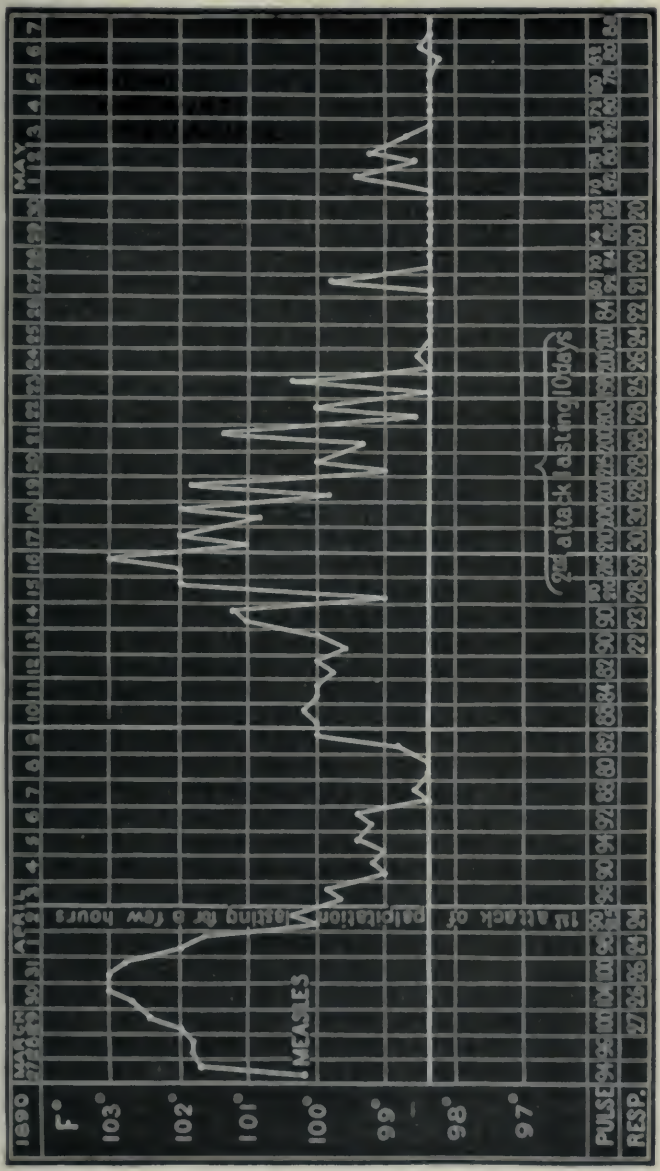

1890
F°
103°
102°
101°
100°
99°
98°
97°
MEASLES
lasting for a few hours
2nd attack lasting 10 days
PULSE
RESP.
MAY

Fig. 13.

the 14th it rose to 101·4°, and on the subsequent days it fluctuated between 99° and 103° (vide chart, Fig. 13).

On the morning of the 15th the pulse was 90, regular, and well filled between the beats; in the evening it could not be counted, and the heart was found to be beating at the rate of 210 per minute. From this date till the 25th, *i. e.* for ten days, the cardiac cycles averaged 206 per minute. An irregular, agitated, tumbling action of the heart, accompanied by sensations of faintness and discomfort, ushered in the attack, but during the period of excessive rapidity the rhythm was undisturbed, the impulse forcible, and the respiration not so much accelerated as one would have expected, being 27, somewhat shallow, but without dyspnœa. There was no pain, but during the first five days of the disturbance there was considerable discomfort, the patient complaining of palpitation and interrupted sleep. During the last five days, however, the child said that she felt better and more comfortable, and that the palpitation had ceased, although the heart was still beating at the rate of 205 per minute. No murmur could be detected, nor was there any increase in the area of cardiac dulness.

This heart-riot, like the previous attack, also ceased suddenly, the number of beats being 200 at 9 P.M. on April 25, and 84 at 10 A.M. on April 26. No headache nor neuralgic pain of any kind was experienced. There was hyperæsthesia, especially on the back, and the *tache cérébrale* was readily obtained on the forehead, chest, and abdomen. The pupils reacted to light, but were slow in contracting.

On April 18, 19, and 20, urine was passed involuntarily as well as voluntarily; this was not due to over-distension of the bladder. There was no albumen, blood, nor sugar. On 22nd and 23rd four offensive, semi-digested motions were passed.

Treatment by means of stimulants and heart tonics was adopted throughout, but the result was unsatisfactory and disappointing. Neither digitalis nor strophanthus combined with bromide of ammonium seemed to have the slightest effect in controlling the heart. Dr. Maclagan, who kindly saw the patient with me, suggested the application of mustard to the neck, and subsequently blisters were applied to the back of the neck—apparently without effect.

On April 22 I applied the constant current (5—6 m. a.) to the region of the pneumogastric in the neck. This reduced the rate of the cardiac cycles for the moment from 210 to

202. I repeated the application on the following day with a similar result, but since the patient complained of the prickling and heat from the electrode and seemed to dread the proceeding, I gave it up.

On April 23 a belladonna plaster was applied over the heart, and on the 25th Fellow's syrup was given three times a day.

Remarks.—In this case there appear to me to be some points of interest. At the time of the first and short attack on April 2, both Dr. Maclagan and myself were inclined to the opinion that the measles poison had set up some cerebral disturbance. However this may be, the predisposition to undue frequency of the cardiac action must not be lost sight of. There was clearly a record of irritable heart and a history of neurotic taint.

That fever was present during both of the attacks is evident from the chart, but I do not think that the pyrexia—whether due to the measles poison or to other disease germ—was the sole factor in inducing the condition. Furthermore, the rapidity of the heart's action was not influenced by the rise and fall of the temperature.

Although it is not improbable that inflammatory states of the heart may be stirred up by the poison of measles, the sudden cessation of the storm and the normal area of cardiac dulness, seem to exclude endocarditis, myocarditis, and other structural change, albeit some such condition may exist without being detected.

Symptoms suggestive of inflammation of the brain or of its membranes were present, but here again the very sudden subsidence of the state seems to negative this hypothesis. It is curious that at one time the patient was conscious of the excessive speed at which the heart was beating, while at another time no palpitation or discomfort was experienced.

As regards the circulation, the vibratory condition of the pulse seems to suggest that the onward flow of the blood was slow, and since there was no evidence of over-distension, it is probable that the diastole was too short to admit of the ventricle being properly filled; so that, if it were filled, it did not empty itself during the systole, although the impulse against the chest-wall gave evidence of the contraction being good. Had there been over-distension, it is probable that it would have been indicated by some increase in the area of dulness.

It has been suggested that in cases of tachycardia the

arterioles and capillaries are contracted. Dr. S. West, in some cases of so-called "paroxysmal hurry of the heart," has met with some success from the use of nitrite of amyl, which rather suggests diminution from nerve-influence in the size of the small vessels.

That the patient was suffering from a low fever I am prepared to admit, but I am unable to assign any cause to its occurrence, nor can I associate the pyrexia with the morbid activity of the heart; yet I will venture the opinion that the disturbance was an expression of an abnormal condition of nerve-centres—not, for instance, of those of the vagus-roots or of its terminals, nor of the sympathetic, but general—in the hope that those of large experience may throw some light upon the obscurity of the case.

XVI.—*A case of Gout of the Penis.* By Sir Dyce Duckworth, M.D., LL.D. *Read January* 8, 1892.

AMONGST the more rare forms of acute gout is that in which the penis is mainly involved. The following case is so remarkable as to be worthy of record.

E. H., æt. 42, a glass-cutter, married, with five children, was admitted into Matthew Ward in St. Bartholomew's Hospital under my care on June 25, 1891, suffering from pains in several of his joints and in his great toes He was a well-nourished, healthy-looking man. The face was flushed, rather florid, but without any dilated vessels. The skin was perspiring. Temp. 100°. No respiratory difficulty. Conjunctivæ clear. No uratic deposits visible anywhere. No evidence of lead-impregnation The tongue was rather dry and thickly furred. He habitually drank two pints of beer daily.

He had always been healthy, with the exception of an attack of lead-colic sixteen years ago, for which he was treated in St Bartholomew's Hospital, and four attacks of gout, chiefly situated in the feet and once in one hand; the last of these attacks occurred six months ago. His father had suffered from gout. He served for some years in the 7th Hussars, and was for three years in India. He was invalided out of the army for right inguinal hernia twenty years ago.

Five days before admission he was awakened by sudden pain in the right wrist-joint and the right great toe. The following day, at 7 A.M., he experienced pain in the penis, and awoke with the organ in a state of erection, which has continued without intermission up to the present time. On June 24 pain occurred in the left great toe.

The various thoracic and abdominal organs were found to be healthy. The urine was acid, sp. gr. 1022, and free from albumen. The penis was rigid and firmly erect, distressingly painful and annoying, and apparently turgid with blood. The enlargement was uniform, the glans partly covered by the prepuce, and free from any smegma. No enlargements or knots were anywhere palpable, and none were found in the perinæum. The testes were natural. There was a small reducible right inguinal hernia.

Extremities.—The right wrist was tumid, red, and very

tender, with some œdema. There were no knotty enlargements of phalangeal joints or deflections of the axes of the fingers. Some pain in the left thumb and metacarpo-phalangeal joints. Both great toe-joints were somewhat enlarged, but were free from pain and œdema.

On the evening of June 25 the temperature rose to 102°, and a bad night was passed. The painful joints were wrapped in belladonna liniment, diluted with three parts of water, and the colchicum and magnesia draught of the hospital was given every six hours. The diet was chiefly farinaceous and milky.

The next day the bowels were opened freely after a dose of Haustus Sennæ Co. with half a drachm of colchicum wine, and a suppository of morphine was placed in the rectum with a view of relieving the priapism.

The temperature varied from 99° to 100° for two days, and the articular pains moderated, but the priapism persisted day and night. A cage was arranged over the abdomen to remove the pressure of the bedclothes.

Micturition was painful. A catheter was passed without any difficulty, and thirty ounces of urine were removed. No calculus was felt in the bladder.

June 28.—The urine was again removed to the extent of a pint, and proved very acid. The colchicum draught was continued, and bromide of potassium and chloral were given without any good effect on the priapism. A pill with camphor and opium was also given without any relief. Some fish was added to the diet.

June 29.—Some fresh pain occurred in the right ankle, but no rise of temperature occurred. The urine was regularly withdrawn by catheter. A mixture with potassium bicarbonate 20 grains, colchicum wine 20 minims, out of peppermint water, was now given thrice daily, and a calomel purge.

The temperature rose to 100° and 101° on June 30 and July 1, in connection with articular pains. The priapism still persisted, but to a rather less degree than before. He now passed his urine naturally, but as the secretion was rather offensively odorous, the bladder was washed out with a lotion of quinine and dilute nitric acid, three grains and three minims respectively to the ounce of water. A morphine draught was given each night, and potatoes and spinach were added to the diet.

On July 4 the priapism still continued. Lead lotion was now ordered as an application to the penis.

July 7.—All the joints now free from pain, but the pria-

pism is still present. The temperature now varies from 97° to 98°. Citrate of potassium and bark were given by day, and a pill of Dover's powder and colchicum at bedtime. Half meat diet was ordered. He now got out of bed for part of each day, improving in all respects, the penis gradually becoming less and less turgid till July 14, when it had resumed its natural condition, priapism having persisted for fully three weeks.

The main features of the foregoing case may be summarized as follows:

The man inherited gout from his father. The occurrence of hernia entailed his giving up an active mode of life, and he betook himself to an occupation—that of glass-cutting—which brought him in the way of lead-impregnation. He consumed a considerable quantity of malt liquor, and hence in several ways encouraged the development of his constitutional taint.

There remain to be considered at least two points; first, the character of the lesion involving the penis, and the reason for its determination to that organ.

Gout is not inapt to alight in acute form on certain parts of the genito-urinary system. Thus we meet with cystitis, prostatitis, and orchitis distinctly due to gouty influence. Urethritis is also recognised, and is apt to supervene as articular troubles are passing off. The gouty affections of the penis at present commonly recognised are—1st. Those connected with thrombosis of the veins in the corpus cavernosum, which may lead to the production of hard circumscribed painless nodules, varying in size from a pea to that of a French bean. These may slowly or only incompletely disappear. 2nd. Fibroid thickening of the spongy and prostatic portions of the urethra may occur, leading to tough stricture. 3rd. Induration of the fibrous sheath of the corpus cavernosum, caused by fibroid tissue in bands or lumps, which may occur on the sides, dorsum, or septum. These are commonly very chronic, and may not completely disappear. Priapism is sometimes a trouble to elderly males, the subjects of irregular gout, occurring chiefly during the night and without erotic feelings. The urine is generally very acid in such cases, and they yield rapidly to treatment with alkalies. Lastly, without any pain, but quietly, there may be a gradual deposition of uratic tophi in the skin of the penis and scrotum.

In the case now recorded there were no physical signs of thrombosis of veins in any part of the body of the penis, but

I cannot entertain any doubt that the lesion was really of this nature, and that some meshes of veins were blocked. I also venture to believe there may have been some plastic gouty inflammatory condition of the trabecular elements associated with this. Such a condition, as I have remarked, if present, afforded no appreciable physical signs in this instance. That it was truly of a gouty nature I can have no doubt. I know of no similar case as recorded in the very extensive literature of gout. It must therefore be regarded as most exceptional and rare, and be included amongst those infrequent varieties of this wide-spread disorder, amongst which gouty parotitis may be mentioned. It is remarkable that the penis should so often escape, for the bladder, the prostate gland, and the testes are not uncommon points whereon acute gouty processes alight. There was no reason to believe that any inordinate indulgence in venery was practised in the case just described.

Since the case above related was read before the Society I have been kindly informed by Dr. Sunter, of Isleworth, formerly of the Army Medical Department, of an instance of gout of the penis which was recorded in the *Dublin Journal of Medical Science* for 1838. In vol. xiii, on p. 138, the following particulars are given, as related by Dr. Weise, of Fraustadt. A shoemaker, æt 45, suffered from annual attacks of gout in the feet, which usually lasted for many weeks. After an attack lasting three weeks the gout suddenly left the feet and attacked the penis, which became erect and extremely painful. There had never been any disease of the genitalia. The urine contained occasionally small particles of reddish-yellow gravel. The pains were relieved by treatment, but returned usually in the evening with greater violence. After three weeks—just the time that elapsed in my case—the penis was free, but gout came in the right foot and left elbow-joint. Continued perspiration and turbid urine announced the crisis, and in fifteen days all the symptoms disappeared, and the patient made a complete recovery, and remained well.

A second case has also been reported in consequence of my communication, and is given by Dr. Spencer Smyth, of Bournemouth, in the *British Medical Journal* of January 30, 1892, on p. 224. It occurred in the person of a captain in the Royal Navy, æt. about 60, married. The penis was greatly swollen, very painful, and phimosis occurred, neces-

sitating incision to allow of micturition. The testes were unaffected. There was no arthritis, but much ardor urinæ. There was urethritis and subsequent discharge of much muco-purulent matter. The priapism yielded on the fifth day of the attack, after treatment with colchicum and alkalies and a farinaceous diet. There were occasional attacks of gout in the right foot. Another similar seizure occurred in the penis a year subsequently.

It is remarkable that these cases have hitherto escaped the notice of the best known authors. They are certainly very rarely met with.

XVII.—*A case of Fracture of the Skull, complicated with hæmorrhage from the middle meningeal artery: trephining: recovery.* By J. Bland Sutton. *Read January* 8, 1892.

On Saturday evening, August 15, 1891, a man, æt. 30, was brought in an insensible condition to the Middlesex Hospital. He had been drinking and had fallen backwards, his head striking the pavement. He smelt strongly of alcohol, could not answer questions, nor was it possible to rouse him. He breathed freely, and the pupils reacted to light. On the left side of the head, slightly posterior to the parietal eminence, there was a superficial scalp wound, and blood issued from the left ear passage.

A few hours after his admission into the ward he became conscious and spoke to the nurse, but quickly became insensible again. I saw the patient for the first time at eleven o'clock on the morning following his admission, and twelve hours after the accident; he was then comatose, and breathing stertorously. Blood-stained fluid was oozing from the left ear passage. He had not vomited: the pupils were contracted and equal. The right arm and right leg were paralysed.

Upon these signs, in conjunction with the history, I came to the conclusion that the man had sustained rupture of the middle meningeal artery on the left side, and that the paralysis depended upon pressure exerted by an extravasation of blood between the bone and the dura mater.

Having obtained the consent of his relatives, I trephined the man at four o'clock the same day, the delay being due to the difficulty of finding his friends.

The operation.—The scalp was completely shaved and thoroughly washed with soap and hot water, then irrigated with a solution of perchloride of mercury (1 in 1000). A large flap of scalp was raised on the left side, and a fissure found running from the middle of the left limb of the lambdoid suture downwards to the external auditory meatus. With a trephine I cut out a circle of bone, an inch in diameter, from about the middle of the temporal fossa. As

soon as the bone was removed blood-clot projected from the orifice. On introducing the finger the dura mater was found detached from the side of the skull by blood-clot; this was scooped out and the liquid parts sponged up. By the aid of an electric search-lamp I detected a fracture running into the petrosal portion of the temporal bone in the situation of the tympanum, but I could not find the torn artery. It was necessary to remove a small circle of bone in front of and behind the first trephine hole, and snip away the intervening strips of bone. It was then found that the dura had been torn from the petrous bone and the subdural space opened; in the free border of the torn membrane I caught the divided posterior branch of the middle meningeal artery with pressure forceps. Any attempts to tie the vessel caused the rent in the membrane to extend, I therefore decided to leave the forceps on the artery for sixteen hours. After thoroughly irrigating the cavity the flap was returned and sutured, and the operation completed.

The subsequent course of the case was very satisfactory: within a few hours of the operation motor power returned in the arm and leg; as the patient was restless, and there was slight oozing from the wound, a quarter of a grain of morphia in the form of a suppository was ordered.

Early next morning, August 17, the wound was dressed and the pressure forceps removed. Cerebro-spinal fluid oozed freely from the ear, and blood from the wound. The meatus was irrigated freely with sublimate solution (1 in 2000).

August 18.—Patient can move the right arm and leg freely; can answer questions, but is restless.

August 19.—Restlessness and discharge of cerebro-spinal fluid continues. Temp. 99°. Pulse 120.

August 25.—The discharge of fluid from the ear has ceased. Patient quite conscious, quiet, and answers questions rationally, but is somewhat deaf on the left side. The discharge from the wound is stained with blood. All the stitches have been removed. From this date his recovery was uneventful.

September 15.—Mr. Laug examined the patient's eyes and found an old lenticular opacity in each, but the discs were healthy.

On September 20 the man was allowed to get about the ward, and in a few days he was discharged convalescent,

the wound having soundly healed. Hearing is somewhat impaired on the left side.

I have ventured to record this case because operations for subcranial hæmorrhage of this description are not common, and I think it fair to assume that the man owes his life to surgical promptitude.

XVIII.—*Five cases of Gastro-enterostomy and two of Jejunostomy for carcinoma of the stomach.* By Fred. Bowreman Jessett, F.R.C.S. *Read January* 8, 1892.

CARCINOMA of the stomach, whether affecting the pylorus or the body of the viscus, is such a distressing disease, and so totally out of the power of the physician to even relieve, that anything which the surgeon may be able to suggest in the way of operative interference which may tend to prolong the lives of patients suffering from this terrible affliction, and to give them a fair amount of relief during the remainder of their lives, must, I think, be of interest to this Society and the profession at large.

At this Society on April 24, 1891, some of the members present will perhaps remember that I showed a patient on whom I had performed the operation of gastro-enterostomy a twelvemonth before, viz. April, 1890. This patient has been able to enjoy life since, and to take ordinary diet, and is now (January, 1892) in the enjoyment of good health, being able to take any ordinary diet.* She has gained flesh, and the growth has not materially increased in size. I mentioned then that I had operated on five cases for carcinoma of the pylorus, performing on each occasion gastro-enterostomy by means of decalcified bone-plates, as suggested by Senn. Three of these had recovered from the operation and lived, one for nine months after the operation, while the patient above alluded to and my fifth case are alive and comparatively well.

At the same meeting Mr. William H. Bennett also showed a case in which he had operated successfully.

Besides these, cases have been reported in this country by Dr. Clarke, of Huddersfield, Mr. Stansfield, Birkenhead, Mr. Mayo Robson, Leeds, Mr. Paul, Liverpool, Mr. Beatson, Glasgow, Mr. Taylor, Nottingham, and Mr. Larkin, Liverpool, as you will see by the accompanying table, with the following results:

* This patient (April, 1892) is still well.

Table of Cases of Gastro-enterostomy performed for Pyloric Obstruction.

Surgeon.	No. of cases.	Died.	Recovered.	Remarks.
Clarke . .	2	1	1	
Taylor . .	1	...	1	
Stansfield .	1	...	1	Died four months later from closure of opening.
Robson . .	1	...	1	
Beatson . .	2	1	1	
Paul . .	1	1		
Bennett .	1	...	1	
Symonds . .	1	...	1	
Brown . .	1	...	1	
Larkin . .	1	...	1	Died five months later from closure of opening. Mr. Larkin had performed jejunostomy.
Jessett . .	5	2	3	
	17	5	12	

This table gives, I think, a very favorable result, showing that 70 per cent. of the cases operated upon recovered.

Other cases besides these have no doubt been operated on in this country, the results of which have not yet been published.

The operation of gastro-enterostomy is necessarily only available in those cases in which the pyloric end of the stomach is the seat of the disease. When the cardiac end of the body of the viscus is affected the operation, of course, would not be applicable. In such cases, however, much may be done by performing the operation of duodenostomy or jejunostomy, and thus enabling the patient to be fed through the fistulous opening. I have performed this operation twice, in both instances successfully, one patient living nine months afterwards comparatively free from pain.

With this brief introduction I will proceed to describe the different cases on which I have operated.

Case 1.—W. V., æt. 61, bath chair man, was admitted into the Cancer Hospital on February 12, 1890.

Family history.—Brother died of cancer of the abdomen.

Personal history.—Previous health good; always been temperate.

Duration.—Patient first noticed the growth in the beginning of October, 1889. Four months ago, during the summer, he was employed as a waiter, and had to carry heavy trays up and down stairs, resting the edge of the tray against the abdomen. The patient says the growth seemed to have commenced on the left side, and to grow across towards the right. The stomach has been dilated for the last two months. During the past two or three weeks he has suffered from vomiting every other day or oftener; the vomited matter was dark and frothy. The patient says in January, 1888, he weighed 11 st. 9 lbs.; on February 23, 1890, he only weighed 9 st. 4 lbs. He does not complain of much pain.

Present condition (February 12, 1890).—Stomach greatly dilated, and occupying the left side, middle, and lower part of abdomen. Succussion splash readily obtained. There is a large mass of disease about the size of a cocoa-nut, measuring 5½ inches from side to side, 4 inches vertically on the right side, and 2½ inches on the left. The growth is nodular, and presents a deep notch about its centre, just above the umbilicus. The growth occupies the whole of the epigastric area, and extends 2 inches to the right of the umbilicus and 1 inch below it.

The growth is moveable, and apparently extends along the anterior wall of the stomach. Percussion gives a dully tympanitic note over the whole growth excepting to the extreme right. The tumour moves freely with respiration.

The stomach was kept washed out twice daily with a 5 per cent. solution of salicylate of soda and warm water; he was fed with Brand's essence of beef by the mouth, and nutritive rectal enemata. Under this treatment the patient was greatly relieved, and improved in strength.

The operation of gastro-enterostomy was explained to him, and he readily agreed to have it performed. On February 25, at 8 A.M., he had an egg whipped up in a cup of tea by the mouth; at 9 A.M., ℥iv of strong beef tea strained with ℥j of brandy. At 11 A.M. he had an enema of beef tea ℥iij, brandy ℥j. At twelve o'clock his stomach was thoroughly washed out with warm water and salicylate of soda; and at 1.40, ten minutes before the operation, he had an enema of beef tea ℥iij, brandy ℥ij, and when on the table a hypodermic injection of $\frac{1}{100}$ gr. of atropine was given.

Operation (2.15).—An incision 3 inches long was made in

the left linea semilunaris, commencing just below the margin of the ribs. All bleeding points being secured, the peritoneum was opened, and a portion of the jejunum as near as possible to its origin was drawn out. Two india-rubber bands were passed through the mesentery about 5 inches apart; the portion of bowel between these being carefully emptied, they were tightly tied, and secured each with a pair of clamp forceps. A portion of stomach was next drawn out through the wound, and an incision about 1½ inches long and about 1½ inches from the great curvature made in its anterior wall, parallel with the greater curvature. A decalcified bone-plate was introduced into the stomach through this opening; the lateral threads, which were curved with needles, being passed through all the coats of the stomach, the longitudinal threads coming out through the incision. These were given to Dr. Dove to hold while I made an incision slightly more than an inch in length in the convex surface of the loop of jejunum. A bone-plate was slipped into the intestine, the lateral threads being passed through all the coats of the intestine. All bleeding points being secured with fine catgut ligatures, the two plates were approximated and held firmly together by Dr. Dove, while the corresponding ligatures of the two plates were firmly tied. About eight Lembert sutures were inserted along the upper edge of the plates uniting the stomach and intestine. The lower edge appeared to be in such good apposition that no extra sutures were introduced. The parts were then dropped back into the abdominal cavity and the puncture-wound closed in the usual manner. The patient bore the operation, which lasted about forty-five minutes, well, and passed a good night.

February 26.—Vomited about ℥x of blood-stained fluid. To have nothing by the mouth, and to have nutritive enemata every four hours, beef tea ℥iij, brandy ℥j, and his urine drawn off every six hours. Temp. 99°. Pulse 84, good. Complains of slight thirst.

February 27.—Passed a fairly good night. Temp. 99°. Pulse 80, rather weak. Breathing regular and quiet. Abdomen soft and flaccid, no pain or tenderness. Enemata to be continued; no food by mouth.

February 28.—Somewhat restless; temperature normal. No tympanites or abdominal tenderness; occasional hiccough. Continue nourishment as before; a little warm water given by mouth.

March 1.—Restless night, pulse feeble, and patient com-

plained of much exhaustion, and gradually became weaker and died in the evening, four days after the operation.

Post-mortem (March 3).—General old peritonitis over liver, spleen, and cardiac end of stomach. The posterior surface of many coils of intestine was adherent to a mass of glands covering the lumbar vertebra. Large secondary deposits in liver.

The adhesion between the stomach and jejunum at the seat of operation was perfect.

The piece of intestine attached to the stomach was discoloured, but showed only very slight recent peritonitis, which was quite localised to half an inch surrounding the juncture.

The bone-plates, as you will see in the specimen, were nearly digested, and hung by the silk threads from the opening.

Case 2.—A. C., widow, æt. 56. Has always been delicate, has suffered constantly from indigestion. For many years has had acute attacks of dyspepsia every summer, which confined her to her bed for a fortnight or so. In February, 1889, during one of these attacks she noticed a "lump," which gradually increased in size. She was constantly troubled with vomiting and pain after taking food. She came under my care in the hospital in February, 1890.

Present state.—There is a tumour in the abdomen occupying nearly all the epigastric region, very slightly moveable. Stomach is much dilated. Succussion splash very perceptible. She had more or less constant vomiting, returning nearly everything she took. On March 31 she vomited "coffee grounds" mixed with food. Patient fed by nutritive enemata and zyminised suppositories; notwithstanding she lost ground rapidly and became extremely feeble, and experienced intense pain. I advised gastro-enterostomy as a palliative measure. The poor woman readily consented, and on April 12, she having been prepared as Case 1, I, with the assistance of Dr. Purcell, performed the operation by making an incision in the left linea semilunaris. She bore the operation, which took about forty minutes in its performance, fairly well.

She had nutritive enemata of peptonised beef tea and brandy administered. On April 15, two days after the operation, she was fed by the mouth with ʒj of peptonised milk every hour, and beef tea and port wine enemata every six

hours, and zyminised meat suppositories every six hours. She made an uninterrupted recovery, and was transferred to the General Ward on April 20, eight days after the operation. This was the patient I showed at the Society's meeting on April 24.

Case 3.—E. W., æt. 45, married woman, nine children, the youngest nine months old.

Family history.—Nil.

Present condition.—Suffers considerable pain after eating, usually about fifteen to twenty minutes after. For the last three months has vomited after everything she takes, food returning undigested. Two weeks before admission the vomit was of the colour of "porter." The abdominal parietes are very thin, peristaltic action of bowel being plainly visible. The stomach is much dilated, extending to midway between umbilicus and pubes. A tumour the size of a Tangerine orange is situated just above the umbilicus, freely moveable. Excepting for the patient's extremely emaciated condition, this was to all appearance a suitable case for pylorectomy.

The patient being prepared for operation, as described in Case 1, on June 4, the patient being under the influence of ether, I made an incision in the middle line between the ensiform cartilage and pylorus. On opening the peritoneum the tumour at once came into view. The mass was freely moveable, and extended from the pylorus to about two inches along the lesser curvature of the stomach. The mesenteric and lumbar glands were found to be much enlarged, and, the patient being in a feeble condition, I decided not to attempt to remove the diseased pylorus, but to content myself with performing gastro-enterostomy. This was quickly done with decalcified bone-plates,* the parts dropped back, and the abdominal wound closed in the usual manner. The patient stood the operation very well. The after-treatment was identically the same as in Case 2.

The patient made a good recovery, and was able to take her food well until the time of her death in February, 1891, nine months after the operation. The disease had considerably increased. No post-mortem could be obtained.

* In this operation I adopted a modification of the bone-plate by inserting into the opening of one of these a decalcified bone cylinder, which fitted the opening accurately when both plates were in position. I inserted the cylinder in this opening into the opposing plate, and fixed the two together with ligatures in the ordinary way. By experiments with the tube in this case I found the objection to this modification was the difficulty of inserting the plate with the bone cylinder attached into the bowel through the ordinary opening.

Case 4.—C. G., æt. 67, male. Has complained of pain and indigestion for the last five years; during the last twelve months has had occasional vomiting from two to three hours after food. Vomited matter thick, frothy, dark green; no blood.

Family history.—Nil.

Present condition.—The stomach is much dilated, and succussion note easily produced. There is no distinct tumour, but an apparent thickening over the pylorus, which is very tender on pressure. The vomiting and pain are so great that the man begs to have something done for him. The operation of gastro-enterostomy was explained to him, and he readily consented to have it performed.

On July 18, having been prepared for operation as already described, I proceeded to perform a gastro-enterostomy with bone-plates through an incision in the middle line between the ensiform cartilage and umbilicus. The only difference between the details in this case and that of the others already described was that I fastened the jejunum to the posterior wall of the stomach by tearing an opening through the transverse mesocolon, and drawing a portion of the stomach through the opening thus made before making the opening for the passage of the plate. I experienced no difficulty in doing this, and think it well worthy of being adopted in certain cases, as it avoids the chances of kinking of the intestine.

In this case, unfortunately, I yielded to the entreaties of the patient to have the operation performed in the small ward in which he then was, as he begged to be allowed to have the same nurse to take charge of him. Although every precaution was taken to disinfect the ward, and scrupulous care was taken at the time of the operation, this patient died on the tenth day from septic peritonitis.

The post-mortem revealed the fact that perfect union had taken place between the stomach and intestine, and not the slightest leakage could be discovered; in fact, in the lesser peritoneum there was scarcely any inflammatory exudation, this being entirely limited to the small intestines and omentum, due presumably to some septic infection taking place during the performance of the operation.

Case 5.—E. H., æt. 52, male, consulted me suffering from violent pain in the epigastrium, accompanied by constant vomiting. He had been suffering more or less for the last two

years, and for the last twelve months had not been able to take any solid food. For three weeks before consulting me he had on various occasions vomited mucus and "coffee grounds."

No history of cancer in his family.

Present condition.—Has lost considerable amount of flesh lately. He vomits nearly everything he takes, and complains of most excruciating pain in the epigastrium. There is a good deal of tenderness over the pylorus, but no very distinct tumour can be felt; on deep pressure, however, a good deal of thickening appears to exist at the pylorus. The pain, however, was so excessive, and the vomiting so distressing, that the patient begged of me to do something to relieve him. I determined, therefore, to make an incision in the median line between the ensiform cartilage and umbilicus, and to be guided by circumstances as to the future steps to be pursued.

February 2.—The patient being prepared as in the other cases, I opened the abdomen as above decided. On exploring the pylorus it was found to be considerably thickened and very hard and rounded. The stomach was much dilated and walls thickened. I therefore determined to perform gastro-enterostomy. A loop of jejunum was readily pulled out of the wound, and united to the anterior wall of the stomach in a similar manner as described in Case 1.

The patient was very exhausted after the operation, but by repeated enemata of beef tea and brandy he soon rallied, and never gave me the slightest cause for anxiety afterwards. He was fed on the second day with peptonised milk in a similar manner as in Case 2.

He is now able to enjoy ordinary diet, and has no vomiting whatever.

The thickening in the epigastrium has not increased, but the tenderness and pain has disappeared entirely; and if, as may be hoped, this is a case of fibrous stricture of the pylorus, there is every hope and expectation that he may be permanently cured.*

The following two cases illustrate the method of relieving patients suffering from gastric carcinoma in which the operation of gastro-enterostomy is contra-indicated. In these two cases great comfort was given by performing the operation of jejunostomy.

Case 6. *Jejunostomy.*—J. C., æt. 45, male. Has suffered

* This patient still remains in good health (April, 1892).

from pain after food and occasional vomiting during the last two years; the vomiting has much increased of late, accompanied by intense pain. A tumour was felt under the left intercostal cartilage, very tender and apparently fixed. The pain was so great after taking any kind of food, that the patient had to be fed almost entirely by the rectum. He, however, lost ground considerably, and it became necessary to do something if the man's life was to be prolonged. The only means of doing this was, in my opinion, to open his jejunum, and thus be enabled to feed him. On June 10, the patient being prepared for the operation by nutritive enemata, &c., as before described, I made a median incision between the ensiform cartilage and umbilicus about two inches long, and by pushing aside the omentum and transverse colon was enabled to hook up a piece of the jejunum close to its origin; this was drawn out through the wound, and a silkworm gut suture passed for about one and a half inches through the serous and muscular coats of the intestine, one on one side of the gut and one on the other, about an inch apart. Two other sutures were then passed through the serous and muscular coats across the intestine from the points at which the longitudinal sutures escaped. These four sutures were next passed through the entire abdominal parietes about half an inch on each side of the incision, and then again through a bone-plate similar to that used for gastro-enterostomy.

Two silkworm gut sutures were now passed through the parietes in the usual manner to close the wound at each end, and the five sutures which were passed through the bone-plate tied securely; finally a portion of the intestine was drawn up through the central opening in the plate, and secured by being transfixed with an ordinary harelip pin.

Three days after, a small opening was made by cutting down on the transfixing pin, and a winged gum-elastic catheter introduced and allowed to remain. The sutures were all removed at the end of a week or ten days, and all was found to be securely healed.

This patient made an excellent recovery, and was enabled to feed himself with beef tea, &c. His pain was considerably relieved, and he became stronger and left the hospital at the end of a month. The disease gradually increased, and he died seven months after the operation. Fortunately I was enabled, through the kindness of Dr. Dove, who went to the man's house and performed the post-mortem, to secure the specimen which I have here to-night.

Case 7. *Jejunostomy.*—W. C., æt. 59, had complained of difficulty in swallowing solid food for the last eight months; complained that the food appeared to go down to the "pit of the stomach," and there remain. Had been losing flesh rapidly.

Family history.—Nil.

Present condition.—Very thin and emaciated; complains of much pain in the epigastrium. Food, when taken, is very shortly returned undigested. Has vomited a little blood. Bougie passed for 16½ inches from the incisor teeth. Deep pressure on epigastrium causes a good deal of pain.

As the symptoms seemed to indicate carcinoma of the gastric end of œsophagus, extending into the stomach, it was decided to perform jejunostomy in preference to gastrostomy, to avoid all irritation of the diseased part.

The operation was performed on August 2, in identically the same manner as described in Case 6. The patient made a good recovery from the operation, but eventually died of exhaustion six weeks after. At the post-mortem examination the disease of the stomach was found to be situated at the cardiac end, and extending along the anterior wall. The œsophagus was practically occluded.

Remarks.—The operation of gastro-enterostomy by Senn's method of using decalcified bone-plates is so simple, and after practice so rapidly performed, that there are few patients who are unable to undergo it; while the results are so encouraging, as shown by the cases I have narrated and others that have been published by other surgeons, that I cannot but think we are justified in advising patients to submit to the operation.

In performing the operation there are one or two points which require special notice. In the first place, the line of incision through the parietes. This should be guided by the amount of dilatation of the stomach and the size of the tumour. If this is very great the incision should be through the left linea semilunaris; if the stomach is not much dilated it may be made through the middle line, between the ensiform cartilage and umbilicus.

The opening into the stomach should be made about midway between the pyloric and cardiac ends, never too near the pylorus. The opening should be made as large as the calibre of the jejunum, viz. about 1½ to 2 inches in length. A continuous suture may be run round the opening to prevent the possibility of its closing up; this also will prevent the extrusion of the mucous membrane. Should the mucous

membrane project very much it may be cut away with scissors.

Two cases have been reported, one by Mr. Stansfield, of Birkenhead, and one by Mr. Larkin, of Liverpool, in which the symptoms of obstruction returned in a few months after the operation, and at the post-mortem examination it was found that the opening had closed. In Mr. Stansfield's case it had completely healed up; in Mr. Larkin's case it had closed, but whether from an extension of the growth or not it was difficult to understand from his description.* All these dangers may be overcome, I think, by either stitching the mucous and serous membranes of the opening together, or freely cutting away the mucous membrane which so often pushes into the opening, especially near the stomach.

The jejunum should be hooked up with the forefinger as near to its origin as will admit of its being applied readily to the stomach; this is easily done if the surgeon will push the omentum to the right, and feel for the notch of peritoneum, which is nearly always more or less marked where the jejunum commences and the duodenum ends by crossing the vertebral column; if not readily found the head of the left kidney may be taken as a guide. On no account must the first piece of small intestine that comes to hand be selected to fasten to the stomach, as by doing so the surgeon runs the risk, which is not an imaginary one, of selecting a portion of the intestine many feet below the duodenum, with the result that if the patient recovers from the operation he dies of marasmus a few months later. Such cases have been reported.

In selecting ligatures for fastening the plates the lateral ones should be of chromatised catgut. If silk be used disaster may follow later on by it hanging in the opening, and acting as a snare whereby food may be caught and accumulate.

In the after-treatment patients may be fed the day following the operation, or at any rate the second day after. Even on the day of operation I give my patients spoonfuls of warm water by the mouth, and commence with teaspoonfuls of peptonised milk on the following day, given every hour; and on the third day Brand or Valentin essence of beef may be given. Peptonised beef tea and brandy enemata should be given, alternated with zymosed meat suppositories every two hours.

In performing the operation of jejunostomy I believe the

* This patient subsequently died, and at the post-mortem examination the opening was found to be closed.

method I have described is novel, and the same as I now invariably adopt in performing gastrostomy. It has the advantage of simplicity, quickness of performance, and a large surface of parietal peritoneum is held in intimate contact with the visceral peritoneum.

There is no possibility of missing the stomach or intestine when opening it, and a remarkably small and valve-like opening can be made, through which a fine catheter is introduced into the interior of the intestine.

In performing jejunostomy the same rule will hold good as I have alluded to in my remarks on gastro-enterostomy, viz. the importance of selecting a portion of the jejunum as near to its origin from the duodenum as possible.

Since writing this paper I have operated on two other patients suffering from pyloric carcinoma, on one which I had the honour of showing at this Society last October, on which I performed the combined operation of pylorectomy with gastro-enterostomy successfully. This patient I heard from last week; she is quite strong and fat.* The other, a patient on whom I performed gastro-enterostomy. This patient was extremely emaciated and feeble, and did not rally after the performance of the operation, dying twelve hours after.

* Dr. Stonham, Ventnor, Isle of Wight, writes me March 14, 1892, that the patient is in excellent health, eats anything, and can do her ordinary work and walk two miles without discomfort.

XIX.—*Punctured Wound of the Thigh: femoral artery and vein divided: ligature of proximal and distal ends: gangrene of leg: amputation through knee-joint: cured.* By Herbert Wm. Allingham, F.R.C.S. *Read January* 22, 1892.

Frank. S., æt. 28, was admitted into the Great Northern Hospital on November 30, 1889, with a deep punctured wound of the thigh at the apex of Scarpa's triangle.

While cutting some bacon with a long, sharp butcher's knife his hand slipped, and the knife penetrated the inner part of the right thigh over the region of the femoral vessels at the apex of Scarpa's triangle. As he was using a good deal of force at the time the knife penetrated deeply.

He immediately withdrew the knife, when a considerable jet of bright blood shot out. He had sufficient presence of mind to bind something tightly over his trousers at the place where he felt the wound.

A doctor was at once sent for and the wound examined; during this the patient is said to have lost much blood. A roller bandage was applied over the line of the artery at Poupart's ligament, and the patient was removed to the Great Northern Hospital.

When he had been put to bed the wound was examined by Mr. Santé, the house surgeon, a Signorini's tourniquet being first applied to the femoral artery above the wound.

The local condition was as follows:

There was a small, clean incised wound, ¾ of an inch long, running in the axis of the limb, and located over the apex of Scarpa's triangle. The surrounding tissues were infiltrated with a large amount of blood, and there was no pulsation observable in them. The whole of the neighbourhood of the wound was very tense, and the limb at this part was greatly swollen.

The foot was quite cold and very pale, with no pulse in the dorsalis pedis or in the anterior and posterior tibials, or in the popliteal. When the tourniquet was loosened a forcible jet of bright arterial blood shot out. A graduative compress

was then applied to the wound itself, and the tourniquet fixed down on the vessels. The limb was wrapped in cotton wool and elevated, a hot-water bottle being placed near to it.

The following was the patient's general condition:

He was a fine, well-built man, but was very blanched. He complained of thirst and of swimming in the head. He suffered from "air-hunger," being restless, throwing himself about and sighing. He had also numbness in the limb.

I was sent for, and as soon as I arrived had the patient conveyed to the theatre. Mr. Bull, of St. George's Hospital, who accompanied me, kindly administered ether. Esmarch's bandage and tourniquet were applied, and the wound was enlarged, being extended to about 7 inches in length.

A large amount of dark blood-clot was removed and the sartorius exposed. This muscle had been penetrated by the knife, and had to be cut across and reflected upwards and downwards. Another blood-clot was then turned out of the wound, and at the bottom it was found that both the femoral artery and vein had been cut clean across just as they were entering Hunter's canal. The aponeurosis of the canal was cut through, and clips were put on to the ends of the vessels. The artery and vein were then dissected out, so that an aneurysm needle could be got round them, and ligatured with a well-carbolised Sir Spencer Wells' silk, first below in two places, and then above, also in two places.

In consequence of the depth of the wound there was considerable difficulty in getting the needle round the vessels. After the ligaturing had been completed the tourniquet was taken off, and the wound was found to be now quite dry. During the process of separating the vessels the long saphenous nerve had been divided.

The wound was then sewn up with silver sutures and silkworm gut, and a drainage-tube was inserted, the wound being thoroughly irrigated with carbolic solution, 1 in 40, which had been used throughout the operation for wound, sponges, hands, and instruments.

Firm pressure was applied, and the wound was dressed antiseptically. A cotton-wool stocking was put on, reaching from toes to groin, and the patient was taken to bed.

Very little blood was lost during the operation, which the patient stood well, but he gave some trouble on recovering from the effects of the ether by trying to get up and being inclined to be violent.

When in bed the leg was elevated, and hot-water bottles

were put near it; as the patient was very restless and in much pain, morphia was injected hypodermically.

Two hours later he was still very restless, and complained of absolute numbness in the leg and of much pain. More morphia, therefore, was given. He was allowed ice and milk, but nothing else.

There was no oozing from the wound. The pulse was 104 and weak. Temperature was 95·4°. There was no pulse in, or return of warmth to, the leg or foot, both of which were incapable of feeling.

Just before midnight the pulse was 130 and intermittent.

December 1.—The patient had passed a very good night on the whole. On this morning the foot was warmer, but no pulse was to be felt in the tibials. The pulse was 100. He complained of thirst. He had recovered his colour, but the tongue was furred; temp. 101°.

December 2.—He had had a quiet day. The foot showed no signs of return of circulation; it looked "waxy," and the veins were prominent. Around the ankle-joint were three ill-looking patches of discoloration and some œdema. The calf was much swollen, tense, and painful. There was also much pain on pressure in the popliteal space.

The wounds were dressed the previous day, and looked well; there had been no oozing. Temp. 100·6°. The pulse was full and bounding. He was given champagne, and afterwards brandy. He had about eight hours' sleep during the night.

At 11 P.M. the discoloration was increasing, and gangrene was commencing. There was no pulse in the tibials, and the calf and popliteal space were tense and painful. There had been no oozing, but the patient was restless. The pulse was 120 and bounding. Temp. 101·2°.

December 3.—The toes and the sole of the foot had become undoubtedly gangrenous in the form of "dry gangrene." There was some mottling of the lower part of the leg. Temp. 100·6°.

December 6.—Temp. previous afternoon 102°. The whole leg had now become more swollen, with two or three fresh spots of discoloration. Still a good deal of pus came from the wound.

December 7.—Evening temp. 102°. The gangrene was spreading slightly; some stitches were removed on account of tension.

December 9.—Evening temp. 100·6°. The wound smelt

badly, and much decomposing clot came away. The gangrene was spreading slowly. The foot was quite dry, with dark brown horny skin. The ankle was marble-white, and above the ankle, irregularly extending, was a mottled purplish discoloration.

December 10.—Not so good a night. The patient complained of feeling weak and of aching in the limb. On the outer side of the calf was a patch of hard, dry, horny gangrene, and the mottled appearance was spreading. Evening temp. 100·8°.

December 12.—No further increase of gangrene, and the wound looked much more healthy. The patient had some pain in the leg of boring character.

December 20.—The wound was granulating well, and looked healthy; the discharge was less; there was no spreading of the gangrene, but there was slight decomposition.

December 23.—Since the last note the foot and lower part of the leg had been very painful; the leg had become far softer, though the foot still retained the dry form of gangrene.

On the morning of the 22nd the temp. had risen to 104·6°, and the patient had great pain. Pulse 135. The tongue furred but moist. By 2 P.M. temp. rose to 105·2°.

I was hurriedly sent for, and at once decided to amputate. Ether was given, and the limb was removed at the knee-joint by Stephens Smith's method of lateral flaps, by which the patella and the semilunar cartilages were saved.

There was very little bleeding; the cut ends of the popliteal artery and vein were found to be plugged. The stump was drained and sewn up with silver sutures; it was dresssd lightly with antiseptics.

After the operation the temperature fell from 105·2° to normal. The wound was dressed again in the evening, and looked well.

December 27.—Dressed every day and healing well, but there was a suspicious-looking dark spot on one of the flaps of skin. There was very little oozing.

December 30.—One stitch was removed. The ominous spot was fading away. Temp. rose to 102·6°.

January 7.—All the stitches had now been removed. The stump looked fairly well; on the outer side was a circumscribed slough about the size of a crown piece. The original wound was almost healed.

January 13.—The stump was still discharging from the

slough, which was now separating. Temp. the previous night rose to 104°, but fell in the morning to 100·4°.

January 17.—Some pus was let out of the original wound. There appeared to be still a cavity that required filling up.

January 24.—The wound and sloughs looked well, but there was great tenderness on the outer side of the stump and some redness. There was more discharge of pus than for some days past. The patient was able to get up for a few hours a day.

January 30.—On the morning before a large collection of pus was let out from the front of the thigh.

Soon afterwards the patient was able to go into the country.

The interest of the case lies, I think, in the following facts:

1. Both the artery and the vein were divided.
2. The gangrene was dry, and did not extend until three weeks after the vessels had been cut.
3. The sudden rise of temperature and the rapid extension of the gangrene, and its change from the dry to the moist variety.
4. Amputation was done through the knee-joint and by means of lateral flaps.

I should like to ask three questions as to my treatment of the case:

1. Ought I to have operated on the first appearance of gangrene; and, if so, where?
2. When ought I to have removed the dry gangrenous limb?
3. When the gangrene became moist and spreading, where ought I to have amputated?

I will try and explain my reasons for acting as I did.

When the gangrene was dry I thought that, as the constitutional symptoms were favorable, it might be advantageous to wait so as to allow the collateral circulation to become good. I hoped then that the flaps would not slough. Again, if I had amputated early I am afraid it would have had to have been through the wound in the thigh, for the wound was not healed, and therefore there was still a chance of secondary hæmorrhage. If I had amputated through the lower third of the thigh, and secondary hæmorrhage had occurred in the vessels, what could I have done?

When it became necessary to amputate, in consequence of the very high temperature and the spreading of the gan-

grene, I did so through the knee-joint for the reasons that I knew that the main vessels were plugged, and that the flaps would by then have become nourished by vessels in the superficial parts; I was also aware that the anastomosis around the knee-joint is very free. I therefore concluded that there was a better chance of the skin-flaps living there than if I had amputated through the thigh, where the anastomosis is not nearly so free.

This important subject has been fully discussed by Mr. Walsham in the *Med.-Chir. Transactions* of 1888. According to his summary I ought to have employed pressure until the collateral circulation was fully established, and then have tied the vessels. In answer to that I must say that in my case this was impossible to do, on account of the very free hæmorrhage and the tremendous amount of extravasation of blood into the tissues, rendering the whole of the thigh extremely tense.

XX.—*On a case of Suppurating Hydatid in the Right Lung: incision of the lung and removal of the hydatid: death.*

By William M. Ord, M.D., F.R.C.P., and H. B. Robinson, M.D., M.S., F.R.C.S. *Read January* 22, 1892.

J. S., æt. 18, a telegraph messenger, was admitted into St. Thomas's Hospital on October 25, 1890. The patient gave the following history of his illness. He had an attack of "pleurisy" in the right side four months before admission, was in bed for two weeks, and then "recovered completely."

Five weeks before his admission a troublesome cough came on, and after this had lasted two weeks he was suddenly seized with pain in the right side, and brought up a large quantity—estimated by him at half a pailful—of opaque yellowish-white fluid, which poured out of both mouth and nose. From that time onward he had been obliged to remain in bed, could only lie on his right side, and had suffered from considerable shortness of breath. The acute pain in the right side lasted for a week. Large quantities of expectoration had been coughed up at intervals during the five weeks. Of late there had been troublesome diarrhœa.

State on admission.—The patient was thin, generally pale and sallow, but with a hectic flush on the cheek and an expression of great suffering and anxiety. He lay on his right side, with his legs drawn up and his neck bent forward. His breathing was rapid, short, and painful. The least change of his position brought on urgent dyspnœa. His breath was excessively fetid. The temperature was 101°, the pulse 120, small, easily compressible, regular. The tongue was of a bright red at the margin, coated on the dorsum with a thin whitish layer.

Chest.—Respiration almost entirely diaphragmatic, shallow, 54 per minute.

Right lung.—Dulness over the lower fourth behind, impaired resonance as high as the fourth rib in front. Vocal fremitus slightly increased over the dull area. Loud bubbling crepitations heard over the dull area behind. (A few

hours after admission these had completely disappeared, and were replaced by well-marked cavernous breathing, the patient having coughed up in the interval more than a pint of frothy, muco-purulent, and very offensive material.) Bronchophony and whispering pectoriloquy obtained over the same area. Bruit d'airain feebly obtained in one or two situations. Just above the dull area fine crepitations were heard, mainly during inspiration. Over the dull area in front of the same lung the breath-sounds were tubular but not cavernous, and vocal resonance was slightly increased.

Left lung.—Resonance nowhere markedly impaired, but there was loud tubular breathing with increased vocal fremitus and resonance over the lower part of this lung behind. At the apex in front inspiration was prolonged and blowing, but not tubular.

Heart.—Dulness begins above at the fourth left costal cartilage, and extends to left edge of the sternum. Apex-beat in fifth space, one inch internal to nipple line. Sounds normal at both base and apex.

Abdomen.—Distended, not tender; good resonance only obtained at highest point, as patient lay on his side.

Diarrhœa continued after admission; stools liquid with few flakes of solid matter; brownish yellow in colour, slightly offensive.

Lower extremities.—Bedsore over right hip.

No ulceration about mouth or fauces; latter somewhat congested.

Some hours after admission an exploratory puncture was made of the cavity at the base of the left lung. Ether spray used, and cannula connected with aspirator. Cannula appeared to penetrate lung. About 1 oz. of thin, sanious pus, with numerous flakes of white membrane, drawn off.

No hooklets could be discovered in the fluid, nor did the membrane appear to be hydatid membrane, but consisted rather of imperfectly formed fibrous tissue.

The *sputum* was also examined for hooklets, and stained and examined for tubercle bacilli. Neither were found.

Urine.—Acid, sp. gr. 1030, large deposit of urates; no albumen, no sugar, no indican, no blood.

The symptoms and physical examination made it pretty evident that a large cavity, secreting rapidly putrefactive pus, existed in the right lung. The decision that an operation should be made through the wall of the chest for the exploration, and possibly the evacuation, of this cavity, was

at once taken, and Mr. H. B. Robinson, the resident assistant surgeon, proceeded to operate on the morning of the 28th, the third day after the admission of the patient.

Operation.—On account of the diseased condition of both lungs general anæsthesia was dispensed with, but the ether spray was used for making the skin-wound. The patient being well over on his right side so as not to hamper the movement of his left lung, an incision was made from the angle of the sixth rib to the inferior angle of the scapula. The periosteum of the rib was then detached, and 1¼ inches were resected. After the removal of the bone there was very marked bulging of the soft parts into the wound when the boy coughed. On careful section in the space left by the resected rib, chiefly through firm fibrous tissue, the hydatid cavity was reached about ¼ inch from the rib. During the section there was no pleural cavity opened, and it was evident that the fibrous tissue indicated firm adhesions between the parietal and visceral layers. There was no hæmorrhage on cutting through the lung. The finger was introduced into the cavity and the opening was dilated, and at the same time was hooked up to the surface by the finger. Almost immediately about half a pint of stinking sanious pus with gas was discharged from the wound, and at the same time there appeared at the opening, and bulged into it, part of a very large and collapsed hydatid cyst. This was removed bodily by gentle traction, and it appeared to be a single cyst having a diameter of quite 5 inches. The opening in the cavity was then stitched to the margins of the skin wound by three silk sutures on either side, and two large drainage-tubes were introduced. During this part of the operation a small piece of gangrenous lung was expelled, together with some more stinking pus. It not being desirable to prolong the operation owing to the boy's feeble state, the cavity was not washed out. The wound was dressed with iodoform and absorbent wool.

The pulse was somewhat feeble towards the end of the operation, but the boy bore it remarkably well, and his condition gave no special cause for anxiety. His temperature before the operation was 102·2°.

Soon after the operation, about noon, the patient had a rigor, and the temperature rose to 102·4°, but sank to normal at 5 P.M., when the pulse was 112 and respiration 58. He could take milk and brandy. The wound was dressed at midnight, as the dressings were soaked through and a large

quantity of offensive pus escaped. Temp. 102°, pulse 128, respiration 56.

On October 29, the day following the operation, the cough was not nearly so troublesome as it had been, and the expectoration was but slightly offensive, but the fœtor of the discharge through the wound was marked. The cavity was therefore washed out with three pints of weak Condy's fluid till the fluid was returned odourless and with little alteration in colour. The temperature was 100·4° F. The washing out was repeated the next day, and again on November 1, when the temperature was 104·2° at 4 P.M. On this day the diarrhœa, which had subsided, became again severe, the motions being liquid, yellowish, and foul-smelling. Under the regular washing out of the cavity at intervals of twelve hours the discharge became during the next two or three days less profuse and very much less offensive, but although the diarrhœa diminished the temperature continued high.

On November 4 a collection of pus outside the margin of the wound was opened, about one ounce of pus being set free. The wound itself at this time looked unhealthy, there being considerable redness about it extending into the axilla.

On November 6 the wound had assumed a much more healthy appearance, and the drainage-tubes were removed; the temperature was, however, 105·4° before the dressing.

On November 7 the patient was able to lie on his back without discomfort, and it was now possible for the first time to make satisfactory examination of the abdomen. A distinct fulness was observed in the right epigastrium and hypochondrium. On palpation a rounded tense projection could be felt. Neither fluctuation nor hydatid thrill could be obtained. There was dulness on percussion over the swelling.

On November 8 the diarrhœa was still severe. The wound was dressed only once in twenty-four hours. There was still an opening large enough to admit the finger easily, and there was considerable gaping. The discharge was less and very slightly offensive. On throwing a light into the cavity the walls were found to be quite smooth and lined by healthy granulations. The irritation about the wound was very much reduced.

On November 9 the temperature was much lower, and had not exceeded 101° in thirty-six hours; the pulse was 144, and the respiration 52 and shallow. The diarrhœa was very bad, and the patient took very little notice of what was going on.

During the night the patient gradually got feebler; he became comatose and died at about 10 A.M. on November 10.

Post-mortem examination by Dr. Sharkey.

Body emaciated. Excision of part of the sixth rib on the right had been performed in the posterior axillary region, and by this means a large cavity in the right lung communicated with the exterior. The right lung was generally adherent to the parietes and diaphragm, and could only be removed from the body by stripping off the parietal pleura with it. On removal a large cavity occupied almost the whole lower lobe, and about the artificial opening a very thin layer of lung only could be seen beneath the greatly thickened pleura. The cavity had a fairly smooth wall, but shreds of exudation, fibrin, &c., adhered to it. It was practically empty. The lung all around was the seat of chronic interstitial pneumonia. Between the parietal and visceral layers of the pleura all over the upper lobe was an empyema, the pus being thick and pinkish yellow in colour. This empyema had no communication with the hydatid cavity below, but was entirely localised. The upper lobe of the right lung was compressed and the seat of very acute broncho-pneumonia, many points and streaks of pus being seen on section.

The left lung was adherent at the base by not very firm adhesions. The lower lobe was semi-solidified by collapse and broncho-pneumonic foci.

Heart.—There was acute pericarditis, the greater part of the visceral pericardium being covered by a thin layer of fibrin. The pericardial sac contained almost half a pint of thin purulent fluid. The valves and muscle of the heart appeared to be healthy.

Liver.—The liver was very large and pale, extending below the umbilicus. It was adherent by a few connective-tissue bands to the diaphragm. It contained two hydatid cysts; one, the larger, about twice the size of a cricket ball, was situated at the right upper extremity. It had no communication with the thorax. On incising it a stream of clear fluid shot out, and a number of daughter-cysts, so numerous as almost to fill the cavity. They ranged from the size of a small apple to that of microscopic objects. They contained perfectly clear hydatid fluid. A similar cyst with similar contents, but only the size of a large apple, was found at the extremity of the left lobe and on its under surface.

Spleen healthy.

Brain healthy.

Kidneys normal, except for a very small cortical abscess in one; it was not of hydatid origin.

It was evident at the time of this patient's admission to hospital that he had a large abscess of the right lung partially discharging through the bronchial tubes. The enormous amount of discharge occurring suddenly five weeks before suggested the existence either of suppurating hydatid or of empyema bursting through the lung. The latter supposition was not favoured by the physical signs. It will be noted that in the first exploration indications of the presence of hydatid were sought for without success. The operation performed a few hours later would have been made at once but for the necessity of communicating with the boy's parents. As an operation for pulmonary abscess it proved successful; but in the long previous duration of the case pyæmic infection had occurred, as indicated in the kidney, in the pericardium and the right pleura. Cases of operation involving the exploration of the lung itself are sufficiently rare at the present time to justify, in our opinion, the record of this ultimately unsuccessful but, in certain aspects, encouraging case.

XXI.—*A case of Hydatid Cysts of Liver: rupture into peritoneal cavity: abdominal section.* By C. Mansell Moullin. *Read January* 22, 1892.

J. H., a thin anæmic youth, æt. 19, was admitted into the London Hospital in October, 1889, under the care of my colleague Dr. Stephen Mackenzie, to whose kindness I am indebted for permission to make use of the earlier notes of the case.

History.—For six or seven years he had noticed a lump forming in the abdomen, on the right side, under the margin of the ribs. It gave him no trouble until August, 1889. About that date it began to increase rather rapidly, and became the seat of a constant burning pain. One day early in September there was a sensation as of something suddenly giving way, and of fluid running away inside his abdomen. Immediately afterwards he was sick, bringing up a quantity of bile, and within a quarter of an hour a copious eruption of "heat lumps" made its appearance all over face, arms, and body. For four or five days there was profuse diarrhœa, but by the end of the week he had recovered so far that he was able to resume his occupation as a barber.

In a few days' time the abdomen began to swell again, but generally, as in ascites; and this increased so rapidly that at the end of October, when he applied for admission, the girth at the umbilicus was 39½ inches.

On November 10 he was tapped under Dr. Stephen Mackenzie's direction, and 308 ounces of dark green fluid, containing bile, drawn off. The specific gravity was 1013; no hooklets could be found. There was no tumour to be felt in the abdomen, and the liver was not enlarged.

The abdomen began to fill up again at once, and by the end of the month it was almost as large as on admission. He was tapped again on November 30 (when 357 ounces of a similar fluid were drawn off), and again on December 13, when 345 ounces came away. On the last occasion a few hooklets were found.

Towards the end of the month I saw the patient in consultation with Dr. Stephen Mackenzie, and it was agreed that as the boy was evidently losing ground, the only course left was

to perform abdominal section and drain the cyst. Accordingly on December 28 he was transferred to the surgical side of the Hospital. The abdomen was then nearly as full as ever; the distension was apparently uniform, but as the left flank and left iliac fossa were resonant on percussion in every position of the body it was probable that the effusion was to a certain extent localised. There was no fever or pain. The urine was small in quantity but of fair specific gravity, and did not contain any albumen.

An incision three inches in length was made in the linea alba, about midway between the umbilicus and the ensiform cartilage; and about 180 ounces of turbid dark greenish-brown fluid escaped at once. The interior of the cavity was lined with a soft smooth layer; its limits could not be made out. The liver was pushed away from the anterior wall of the abdomen, and the finger when passed upwards entered a large space, partially divided into two by the thickened suspensory ligament. The intestines were pushed downwards in a similar manner. Two large drainage-tubes, eleven inches in length, were inserted into the right and left pockets, the upper and lower parts being left free, as it was hoped that as soon as the fluid was removed the elastic pressure of the viscera would close the cavity and prevent any accumulation.

For the first few days an enormous amount of a similar brownish fluid, apparently consisting largely of broken-down liver substance, continued to drain away. Then the character of the discharge gradually changed, and it became of a bright canary colour and creamy consistence, with an immense number of hooklets. The lower part of the cavity rapidly contracted, but, right and left, two deep recesses persisted; and in front, above the incision, the liver dulness disappeared altogether, the percussion note being tympanitic until the level of the lungs was reached. Throughout the whole of this period the patient was constipated, and the motions, although they contained some bile, paler than natural. In about three weeks the membrane began to separate and make its appearance in the shape of rolled-up shreds. Sometimes these came away easily, but every now and then they gave rise to a good deal of trouble by obstructing the orifice into the cyst. During these attacks the character of the discharge underwent considerable changes; it lost its bright colour, and became greenish instead of yellow; there was less bile in it, and more pus, which came

especially from the left-hand side of the cavity; and at length, after one of them, the bile disappeared altogether. At the same time the motions became looser and darker in colour; the tympanitic note over the liver disappeared; the temperature rose, especially of an evening, and the patient began to fail, suffering from profuse night sweats.

Several attempts were made to find and open up the inner orifice of the cyst, but without success, a probe passing upwards and backwards along the under surface of the liver for upwards of nine inches. At length on January 25 a great mass came away, and with it two or three ounces of thickish pus. The next day the tympanitic area was again distinct, the temperature fell, and the appetite, which had begun to fail seriously, improved. A similar occurrence took place a few days later, and again a few days after that; but although portions of the cyst-wall were continually coming away, the only real sign of improvement was the gradual contraction and disappearance of the left half of the cavity; the patient was suffering from hectic, more or less severe according to the amount of discharge, and gradually losing ground.

On February 19 the patient suddenly felt something burst inside him, and an immense quantity of bright yellow muco-serous fluid poured out from the wound, bringing with it masses of cyst-wall much thicker and larger than any before. Three days later a huge piece, upwards of forty square inches in area and a quarter of an inch in thickness, presented itself at the orifice of the sinus, and was slowly pulled out. It was deeply bile-stained, soft, and gelatinous, and was covered on one surface with a number of minute elevations about the size of a small pea, probably immature scolices.

The shock attendant on this was much more severe than that which had followed the original rupture. The temperature fell two degrees below normal, and the patient lay in a state of complete collapse for many hours. This was followed by profuse diarrhœa, which was only stopped by the free use of opium and stimulants, and for some days the condition was very critical. Then by slow degrees the patient began to rally. The discharge lost its green colour, and became dark brown; the quantity diminished, and although a few fragments of cyst-wall came away at intervals, no more large pieces followed. By the end of March the sinus was only an inch and a half in length; in a few days more it had closed, and the patient was discharged. He was seen in July; the liver dulness was

practically normal; the sinus was closed, and he had commenced work again.

The history of this case is not difficult to trace. In all probability there were two cysts close together, both unilocular. The one near the anterior surface of the liver gave way first, and its contents with a certain amount of bile escaped into the peritoneal cavity. This was followed by shock, then almost at once by urticaria and profuse diarrhœa, and later by ascites, the fluid collecting again and again. At first the exudation must have been general; subsequently it became limited, although, as the cavity could hold nearly twenty pints, the boundaries were fairly wide. The second cyst, the wall of which was very much thicker, was in all probability killed by the inflammation near it, for when it broke into the track left by the other the membrane was already softened and detached from the adventitia, and the fluid was turbid (although not purulent) and mixed with bile.

The most interesting feature is the comparatively slight character of the earlier symptoms. Rupture of a hydatid cyst into the peritoneal cavity is usually regarded as almost inevitably fatal from shock, or within an hour or two from absorption of the hydatid poison, or later from peritonitis. Cyr estimates the mortality at 90 per cent. Cases of recovery are, however, probably not so rare as is usually believed. Féréol, for example (*Union Médicale*, 1880), mentions one in which nothing more serious than a transient attack of ascites followed, and two others in which a cure was effected (after the rupture) by aspiration; the diagnosis resting in the first upon the sudden and permanent disappearance of the cyst coincidently with an attack of urticaria, in the others upon the character of the fluid withdrawn. Finsen, who had a large experience of this affection in Iceland, where it is notoriously common, affirms this much more strongly, stating that only two out of thirteen under his own observation terminated fatally. It is true that some doubt has been thrown upon his figures, and it has been said that in Iceland the diagnosis of rupture is considered established whenever a patient who is known to suffer from hydatid disease is attacked by urticaria; but even if this is admitted, it is open to question whether the proportion of fatal cases is as high as is usually represented.

Murchison, who mentions several cases of recovery, appeared inclined to assign the difference in the gravity of the symptoms to the presence or absence of scolices or secondary

cysts in the fluid that escaped, but probably there is a variety of causes. The condition of the patient is one, though not perhaps the most important. In the present instance, for example, the shock caused by the rupture of the second cyst, although its contents were discharged into a granulating sinus with a wide external orifice, and not into the peritoneal cavity, was infinitely more grave than that which followed the first. The state of the peritoneum may be another; at least it seems from other facts that in different people or under different conditions it is affected by irritants in very different degree. The rapidity with which the fluid escapes is a third element; and naturally, if the space into which it pours is a limited one, and not the general cavity, the effect is not likely to be so grave. All of these, however, although they may influence the severity of the shock, are only of secondary consequence so far as the later symptoms are concerned. The urticaria (which, curiously enough, does not appear a second time even if there is a second injection or a continuous escape of hydatid fluid), the fall in the blood-pressure, the diarrhœa, and the peritonitis can only be accounted for by the character of the fluid. The evidence with regard to this has been recently summarised by Langenbuch. So long as the cyst is living the fluid inside contains a poison (a ptomaine according to Moursson and Schlagdenhauffen), the quantity, or at any rate the virulence, of which varies with the rapidity of growth and the activity with which daughter-cysts are produced. During the stage of quiescence the fluid is almost inert, and rupture is attended either by a slight attack of urticaria or by no specific symptoms at all. If the cysts are dead the poison may be entirely wanting. The existence of this poison has been confirmed by Brieger; and it may be regarded as demonstrated clinically by Bryant's well-known case, in which some of the fluid entered the portal vein, and experimentally by Humphry and Roy, who showed that when injected into the jugular vein of a dog it caused an immense fall in the blood-pressure and extreme slowness of the heart's action (*Lancet*, 1887).

This will account for the constitutional symptoms, and for the different results that have been obtained by various observers experimenting on animals with clear hydatid fluid. The peritonitis, on the other hand, depends upon the secondary changes the cyst has undergone, and upon what may be called the accidents of the rupture. Ordinary hydatid fluid is absorbed, and produces more or less constitutional disturb-

ance according to its quality and amount; if, however, the cyst is dead, and its contents are turbid with floating fragments of membrane; if it is full of daughter-cysts; if a large amount of bile escapes at the same time; above all, if suppuration has taken place around, inflammation of greater or less severity is bound to follow.

In this particular instance either the poison was almost inert or the patient must have possessed unusual power of resistance; but the fluid that entered the peritoneal cavity, the bile, fragments of membrane, immature scolices, and other *débris* were sufficiently irritating to cause an immense quantity of fluid to collect time after time, and this rendered further measures necessary.

The choice of treatment in cases of this kind, supposing the patient to have rallied from the shock, is not very large. It is possible that some benefit may be derived from the injection of atropine. Humphry and Roy found in the experiment already quoted that it neutralised the effects of the poison, raising the blood-pressure and making the heart beat more frequently; and the former used it with success as a precautionary measure in the case of a patient who, when tapped upon a previous occasion, nearly died from the effect; but naturally this does not prove much, and nearly always the action of the poison is so rapid that it is impossible to separate its effects from those due to the nervous shock.

If the patient survives this, and fluid slowly accumulates in the abdomen without any fever or active inflammation, aspiration may succeed (Féréol relates two cases in which it did); but it is open to the grave objection that it gives no information as to whether there are any daughter-cysts present or not.

If the inflammation is acute or persistent—if, that is to say, a large quantity of bile or liver *débris*, or the contents of a dead or suppurating hydatid, or if numbers of daughter-cysts are discharged into the peritoneal cavity, the only course that offers any prospect of cure is abdominal section. The present instance must be regarded as fortunate in that the fluid at the time of the operation was no longer diffused generally over the whole abdominal cavity, so that there was no need to wash out the peritoneum or remove the cyst, or stitch it to the anterior wall; but it is impossible to say how far this is to be attributed to accidental causes, and how far to the aspiration which rendered it possible to postpone the final operation for upwards of four months.

XXII.—*Four cases of Perforation of the Appendix Vermiformis.* By D. B. Lees, M.D. *Read February* 12, 1892.

Case 1. *Concretions in the appendix vermiformis: suppuration: perforation: peritonitis: coffee-ground vomit: death.*—George E., æt. 27, footman, was admitted into St. Mary's Hospital under my care, October 17, 1890. He had never had any previous illness, and had never suffered from dyspepsia. On October 15 he said that he did not feel well; he went out with his master's carriage, and complained of cold. On the morning of the 16th he had pain in the right iliac fossa, which came on gradually. After this he was sick two or three times. The bowels had been regular, and were open again on the 17th.

On admission his temperature was 100·4°; pulse and respiration normal. He complained of some slight abdominal pain, but not much. Did not look anxious. Colour good. Lay on his back, but the thighs were not flexed. Abdomen only a little distended, though the recti were tight. Distinct moderate tenderness over the appendix. Hot fomentations were applied, and ¼-grain of opium given every four hours. I first saw him the next morning, October 18. The temperature was only 99·4°, and his pulse quiet, I believe under 100. The thighs were still not flexed, but I noticed that the diaphragm was motionless. The pain did not seem to be more acute, but it extended higher up the abdomen. I felt sure that he had a lesion of his appendix, with some peritonitis over it, but the symptoms were so subacute that I did not at once seek surgical aid. Yet within twenty-four hours he was in a hopeless condition. At 9 P.M. he began to vomit, for the first time since his admission, without much retching or nausea. The vomit was at first dark green, but soon became black. An enema which had been given was retained. During the night he brought up more than two pints of dark fluid like coffee-grounds, apparently by simple regurgitation into the mouth, spitting out a mouthful at a time. It was supposed to be altered blood. I saw him again at noon on the 19th. The character of the pulse was

now entirely changed; it had risen to 140, and was feeble and fluttering. The abdomen was more tense, pain more general, tenderness in the right lumbar region more extensive. Sphincter of anus tightly contracted; rectum full of fluid. Temp. 99°. Mr. Page and Mr. Silcock saw him, and agreed that he was too ill for operation. The distension of the abdomen being especially marked in the epigastric region, a stomach-tube was passed, and at once fully two pints of dark fluid escaped. The stomach was then washed out, and ergot and ether injected hypodermically. After this he was much relieved, and remained quite free from pain till his death six hours later; he would hardly believe that he was in any danger, and said he thought he would recover, even when his hands were cold and clammy, and his pulse had risen to 176. He died at 6.30 P.M., less than four days after the onset of pain.

The post-mortem examination was made by Mr. Silcock about forty-eight hours after death. There was peritonitis over the greater part of the right side of the abdomen, but the left side was practically free from it. The appendix vermiformis was found below and to the left of the cæcum; over it there was puro-lymph, which was found to be exuding from a perforation at its extreme tip. Concretions could be felt within, which could be easily moved along its interior. On opening the appendix it was found to be dilated and intensely inflamed, its wall extremely congested, and the mucous membrane coming off in patches. It contained pus and several concretions, two of which were as large as a small pea, and four or five of the size of a hempseed. The cæcum and small intestine seemed normal. No blood or coffee-ground fluid was found in any part of the alimentary canal. The stomach looked a little eroded in two places near together, not far from the pylorus, but there was no distinct ulcer, and the cardiac end of the stomach was much altered by post-mortem digestion. The duodenum was normal.

The smaller concretions had a glistening polished surface; they were easily crushed into an earthy-looking powder. A section of one of the larger ones showed a white nucleus, and around it white spherical stratified layers. The second larger concretion was preserved entire; it showed smooth polishing of the surface at opposite poles of a diameter, evidently from long-continued friction, while the rest of the surface was of a dull clay-colour.

It seemed clear that these concretions must have been

wholly or almost wholly formed in the interior of the appendix itself, and that they must have been present for a long time before the commencement of the fatal illness.

Case 2. *Perforation of appendix: excision: cure.*—Henry S., æt. 17, messenger in the post office, was admitted into St. Mary's Hospital under my care on the evening of November 22, 1890, and was seen by me at 10 A.M. the next day. He had been quite well until November 20, when while running to his work he felt a sudden pain in the right iliac region. It was not very acute, and did not make him feel sick or faint; he was able to go on to his post office, and to make two "collections" from the street pillar boxes. But as the pain grew worse he had to leave his work. The bowels, which had been previously regular, had not been opened since the onset of the pain. He had also been sick several times, but he could not remember precisely when this began; it had recurred since his admission.

I found him lying on his back, but his thighs were not flexed. Face natural, no expression of pain. Abdomen distended moderately, tympanitic all over, somewhat tender on pressure, but not much. When asked said he had pain, and pointed to the right iliac region. No lump could be felt there or elsewhere. Diaphragm motionless.

Remembering the previous case, I at once sent for Mr. Page, and on consultation it was agreed that an operation was advisable. After some hours' delay, to obtain consent, chloroform was administered at 4 P.M. An incision was made in the right linea semilunaris. The appendix was exposed without difficulty, and was found to have in its wall a ragged hole the size of a pea. Just outside this hole fragments of a concretion were discovered; they were earthy in appearance, crumbled easily, and had a fæcal smell. There were recent peritonitic adhesions in the immediate neighbourhood, and a piece of small intestine was adherent to the appendix by recent lymph, and somewhat kinked, narrowed at the site of adhesion, and dilated above. There was no general peritonitis. A ligature was placed round the root of the appendix, and the distal part removed. The adherent intestine was set free. The peritoneal cavity was washed with warm boiled water and the wound closed by sutures, a drainage-tube having been inserted.

When I saw the patient the next morning he was happy and smiling. His pain had vanished, and he informed me

that he was now hungry, "as he had not been able to eat for the last two or three days."

On examination of the piece of appendix removed, it was found to be of nearly normal diameter, not acutely inflamed, and not containing any other concretion. The lumen at the proximal end was much smaller than the diameter of the hole in its wall; it admitted easily a probe, which could be pushed either along to the tip or out at the ragged opening. Thus a direct communication had existed between the interior of the cæcum and the peritoneal cavity.

Mr. Page has favoured me with the following account of the operation and the subsequent progress of the case. "I had no doubt as to the propriety of operation, and the lad seemed in a favorable condition for it. There was marked rigidity in the right iliac region, and when under anæsthetic a distinct deep-seated swelling was to be felt. As the linea semilunaris was directly over this, the abdomen was opened by a four-inch incision through it. Passing the finger vertically downwards the parts were found adherent together, and quite in the depths there was a small quantity of purulent matter. In it were two small bodies, the remnants of concretion. Amongst the several adhesions one more especially involved a coil of small intestine over an area the size of two postage stamps, and here the gut was unquestionably narrowed by kink. Adhesions freed, the appendix was found. It was two inches long, bent on itself, swollen and bright red in colour, and had a ragged hole in its wall half an inch from the cæcal end. At the proximal side of this orifice a silk ligature was tied round the appendix, which was then removed. So short was the stump that it was impossible to bring it to the surface, to invaginate the end, or to suture peritoneum over it. The parts were cleansed by wiping with soft sponges, and the abdomen was flushed with sterilised water. A drainage-tube which reached to the site of the stump was passed in at the lower end of the wound. The lad soon rallied from the operation, and was obviously better the next morning. The abdomen moved in respiration, and was less distended, and he was free from pain. For a week he had small doses of morphine under the skin, but there was no drawback to his steady progress to recovery, save from vomiting on the third day from having been given too much food, and from diarrhœa on December 10. The drainage-tube was removed in twenty-four hours, and all sutures were taken out on November 29. By the 26th No-

vember his evening temperature had become normal, and his pulse was 76; but on the 29th it had risen to 99·8°, because of painful swelling of the left parotid, which lasted for four days. The bowels were moved for the first time on December 6.

"The lad was not discharged until January 15, because it was deemed wise to keep him at rest, so as to avoid any risk of hernia, and also because of delay in his admission to a convalescent home. Otherwise he might have left a fortnight earlier. When seen in February he was the picture of health, the wound was perfectly sound, and he had had no pain or trouble of any kind.

"Of the operation it may be said that it presented no features of special difficulty, other than those incidental to the presence of adhesions, and the depth of the parts from the surface. In it I had the invaluable help of my colleague Mr. Silcock."

This patient is present for examination this evening. He is in perfect health, and is doing his work regularly. He has also taken to bicycling, and has had some severe falls, yet the scar of the operation is in perfect condition, and has not yielded in the slightest.

Case 3. *Perforation of appendix: excision: cure.*—Stephen P., æt. 20, labourer, was admitted into St. Mary's Hospital on Sunday, January 3, 1892. He had been in perfect health until the previous Monday, December 28. Early on that day, while washing, he was seized with acute pain in the abdomen, at first referred to the umbilicus, but soon "settling down" in the region of the vermiform appendix. He was able, however, to go out in search of work, both that day and the next, in spite of the continuance of the pain; but after this he was obliged to take to his bed. Vomiting began on the Tuesday and continued on the Wednesday, and to a less extent on the Thursday. The bowels became very loose, and continued so until his admission, so that he was sent into the hospital with a diagnosis of typhoid fever; but the acute onset of his illness made this very unlikely, and a motion passed after his admission was half formed and dark in colour; and it was clear that he was suffering from peritonitis, for the abdomen was swollen, the right side more so than the left, and it was also very tender on gentle pressure, especially over the region of the vermiform appendix, where I thought I could dimly feel a deep swelling. The diaphragm was quite motionless during inspiration, but the legs were not

flexed on the abdomen; and although, when asked the question, he said the pain was bad, he had not the look of one who was suffering severely, and he was able to lift himself into a sitting posture. The pulse-rate was 96, the temperature 99°. This was his condition when I first saw him on the Monday afternoon. I felt certain that he had perforation of the appendix, and that immediate exploration was necessary. Mr. Silcock kindly saw him with me, and concurred both in the diagnosis and in the decision as to treatment. The consent of the patient and of his mother having been obtained, the operation was undertaken the same evening. Ether was administered at first, but it was soon exchanged for chloroform on account of the straining.

Mr. Silcock made an incision about 2 inches long in the right linea semilunaris, the skin having been previously carefully cleansed and washed with solution of perchloride of mercury (1 in 1000). When the peritoneum was opened the cæcum came into view, with a deeply congested piece of omentum adherent to it. This having been carefully detached some pus escaped, but nothing could be seen of the appendix. After a careful search it was discovered behind the cæcum, and adherent to it and to the parts around. After some difficulty Mr. Silcock succeeded in isolating it, and discovered a hole in its wall, through which a probe passed easily into its interior. A ligature was passed around the appendix as low down as possible, and it was then cut away; the congested piece of omentum was also cut away, the mesentery having been secured by three ligatures. There was a good deal of capillary oozing from the adhesions around the appendix, but this was arrested without much difficulty. An india-rubber drainage-tube was inserted, and the wound closed in the rest of its length by deep sutures passing through the peritoneum and the abdominal wall.

On examining the piece of appendix removed *two* separate holes were found in its wall, each of which would have allowed a pea to pass through. No concretion was discovered. The lumen of the appendix was not dilated, and there was no purulent inflammation of its interior.

The patient made an uninterrupted recovery. He is now at a convalescent home.

Case 4. *Fæcal abscess over the appendix: operation: cure.*—John W., æt. 18, footman, was admitted into St. Mary's

Hospital February 5, 1892, at two o'clock, and I saw him four hours later.

He had been quite well until three days before. On Tuesday, the 2nd, about half-past seven, while waiting at table, he felt a sudden sharp pain across his abdomen. Four hours later vomiting came on, and was repeated several times. During the two following days the vomiting recurred, and there was much pain in the right iliac fossa. On the day of his admission he had not been sick, and his pain was no worse.

There was a distinct swelling above the middle of Poupart's ligament on the right side and to the inner side of this point. It was painful and very tender. By careful handling I felt a deep-seated rounded tense swelling at the position of greatest tenderness. The action of the diaphragm was not entirely absent, but it was certainly feeble.

At nine o'clock the same evening ether was administered, chloroform being afterwards substituted for it. Mr. Page made a vertical incision over the most prominent part of the swelling. Immediately the peritoneum was opened there was a flow of stinking pus having a strong fæcal odour. This was washed away by irrigation, but more pus of the same kind came up from the depths of the wound, and the irrigation had to be twice repeated. The appendix was felt in the immediate neighbourhood of the wound, but it was so firmly adherent to the parts around that it was impossible to remove it, or even to ascertain whether there was a perforation in its wall. Beyond it the abscess was bounded by strong adhesions, which shut it off from the general cavity of the peritoneum.

No attempt was therefore made to remove the appendix. The abscess cavity was thoroughly washed out with solution of perchloride of mercury and dusted with iodoform; a drainage-tube was then inserted, and the rest of the wound closed in the ordinary way.

Next morning the patient was almost absolutely free from pain; his temperature had fallen two degrees, and his pulse-rate had diminished from 120 to 96.

A week has now passed since the operation, and his progress has been completely satisfactory. For the first two or three days the discharge had a fæcal odour. On the fifth day a small concretion made its appearance while the wound was being dressed. It is of about the size and shape of a grain of wheat, is firm and clay-coloured, and had a distinctly fæcal odour.

Remarks.—In the first of these four cases the vermiform appendix contained several concretions, evidently of old standing, which had at last caused acute inflammation of the appendix, the pus having made its way through the tip of the organ into the peritoneal cavity, where it had caused a diffuse peritonitis.

In the second case two fragments of a concretion were found just outside a hole in the wall of the appendix, and in the immediate neighbourhood were recent adhesions, some of which involved and kinked a piece of small intestine.

In the third case there were two holes in the appendix and rather firm adhesions, but no concretions were found; they had no doubt been disintegrated.

In the fourth there was a fæcal abscess around the appendix, with remarkably strong adhesions considering the short duration of the case. There can be no doubt that a perforation of the appendix existed, though it was not possible to demonstrate it. Here also no concretion was found at the time of operation, but one escaped from the wound five days later.

It is clear, I think, that all these cases were of the same nature, and it is worth while to point out that they all occurred in the same sex and at about the same age—in young men of 27, 17, 20, and 18; and in the oldest of these the concretions had evidently been present for a considerable time. Can any one explain why it is that young men of from 17 to 25 are specially liable to the formation of these concretions and to their disastrous consequences?

It is clear from these cases that perforation of the appendix does not necessarily give rise to symptoms of collapse, and that the patient may even be able to continue at his work in spite of the fact that a direct communication has been formed between the interior of the cæcum and the cavity of the peritoneum. The pain and tenderness may be so comparatively slight, and the peritonitis so subacute, as to make it appear that operative interference is hardly justifiable. Yet my first case proved that even under such circumstances a delay of a few hours may be fatal. Warned by this experience, I advised immediate operation in the other three cases, although in the second and third the symptoms of peritonitis were so comparatively mild as apparently to warrant delay.

It may perhaps be said that these two cases might have recovered without operation, and this is of course possible. But my first case proves that the risks are great. There may

be acute suppuration and no adhesions at all, or the adhesions may prove insufficient to prevent the spread of the inflammation to the peritoneum generally. And if the adhesions are strong enough for this they may do harm in another way, by fixing a coil of small intestine, as had already occurred in my second case, and so causing some day a fatal obstruction of the bowels.

In the fourth case the local symptoms were more distinct, and there can, I imagine, be no question as to the propriety of making a free opening into a collection of stinking pus, especially in the immediate neighbourhood of the peritoneum.

The relief afforded by the operation in each instance was most striking; immediate freedom from pain and uninterrupted recovery occurred in all.

But I do not wish to be understood to recommend immediate operation in all cases in which there is pain and swelling in the region of the appendix. I have seen several examples of a local inflammation in this position in which a distinct tense swelling could be felt, but where there was no, or very trifling, evidence of peritonitis, in which rapid improvement, great relief from pain and tenderness, and early and progressive diminution of the swelling have followed the application of an ice-bag. Such cases, however, are prone to relapse, often before many months have passed away; and after the occurrence of three or four such relapses it may be highly advisable to consider whether removal of the appendix is not desirable. One such instance, in which ice gave great relief on two occasions, but in which a thickened appendix was afterwards excised, will be related by my colleague Mr. Page this evening.

Lastly, I wish to draw attention to the black vomit observed in my first case, and to seek information from the members of this Society as to its causation and the conditions in which it has been found to occur.

XXIII.—*A case of Acute Appendicitis: removal of appendix in the twelfth week: prolonged suppuration: recovery.* By Herbert W. Page. *Read February* 12, 1892.

A MAN æt. 23, who had never had any illness in his life, and whose family history was not less good, was admitted to St. Mary's Hospital under the care of Dr. Cheadle on February 6, 1890. Five weeks before that date, on the morning after an exceptionally hearty and late supper, he had such abdominal pain that he was obliged to stay in bed. He was better in a couple of days, and resumed his work as a slater; but after ten days more the pain returned, and he was seized with vomiting. He took to bed again, and during the three weeks he was confined to it the vomiting continued, until three days before admission, when it ceased and gave place to diarrhœa. The vomiting had never been profuse or at all stercoraceous. The medical notes record that on admission his temperature was 100° F., and his abdomen was somewhat distended; that in the right iliac fossa there was a well-defined and tender swelling, which reached over towards the middle line; that his right thigh was slightly flexed; and that he looked pale, emaciated, and ill. After the local abstraction of blood by leeches and hot fomentations his pain was less, the vomiting became infrequent, and the diarrhœa was checked by opium. His temperature stood about the same height until the 17th, when without obvious reason it went up to 103° F. This was the beginning of an attack, as it was supposed, of more general peritonitis, for he had more abdominal distension and pain, and the respiration was decidedly thoracic. The attack passed away, however, and on the 26th his temperature had fallen to normal; but it was noticeable now that his thigh was much more flexed than formerly. For six days the temperature hovered between 98° and 100°, and he was generally easier; but after the 3rd March its tendency was higher, and in every respect, as to pain, tenderness, flexion of the thigh, and emaciation he was daily going downhill. He was transferred to my wards on March 23, it being then believed that there was local inflammatory mischief in connection with the appendix, which was capable of surgical relief. There was no evidence of hip or

spinal disease, but there was a large resistent mass in the right iliac fossa, and the thigh was acutely flexed on the pelvis. The man was extremely ill, wasted almost to a shadow, and apparently a most unfavourable case for operative interference. This, however, alone seemed now to give him any chance of life, and accordingly on March 24 the abdominal cavity was entered over the aforesaid swelling by an incision as for iliac ligature. Difficulties now arose, and were very considerable, for all the parts were closely matted together by inflammatory adhesions. Firmly fixed in this iliac fossa was a mass of omentum, which felt as if it had something solid within its meshes. It presented itself as the adherent extremity of a thick band of omentum, which came down from the direction of the umbilicus. I carefully unravelled it, and in the middle of it was found the vermiform appendix, 3 inches long, bent on itself, and so tense, swollen, and œdematous as to be of the size of one's little finger. A quarter of an inch from the cæcum the swollen appearance ended, and the appendix at this point was natural and of natural size. At this site a silk ligature was tied round it, and it was cut off. I found it quite impossible to involute the stump and suture the opposed peritoneal surfaces, and I had to be content to leave it as it was. This omental lump, with the swollen appendix in the middle of it, was not, however, the only cause of the swelling which had been felt, for immediately below it, in the subperitoneal tissues, between it and the iliac fascia, was a large, presumably inflammatory mass. It did not fluctuate, and I deemed it wiser in the circumstances to leave it alone, thinking there might be a chance of its absorption, and that it was better to avoid the risk of its contamination by exploratory puncture, or that of the peritoneal cavity by the then evacuation of an abscess. The wound was cleansed and closed in the ordinary way. There had been no cause for peritoneal flushing. A large drainage-tube was inserted.

Examination of the amputated appendix, which collapsed after removal, showed all its coats to be thick and tough. At the place of ligature there was an obvious constriction, and, although neither scar nor ulceration were found, it seemed highly probable that there had been some previous injury to it and cicatricial narrowing at this point. There was no concretion.

The man bore the operation better than had been expected, and for several days showed distinct signs of improvement,

was freer from discomfort, and ate better; and when the sutures were removed on March 30 the wound was found to be united in its deeper parts, the track of the drainage-tube alone excepted. His temperature, however, still kept up, and I feared that trouble was impending with the inflammatory mass, both because of the continuing fever and from his inability to move his thigh any better than before.

Our fears were soon realised, for on April 4 pus was noticed to be issuing from the orifice where the drainage-tube had been. The pus was highly offensive, but not fæculent; and it may be said, once for all, that there never was reason to think that the stump of the appendix had not been sealed and closed. This pus, which began to flow on April 4, was merely the prelude to a long period of profuse and exhausting suppuration. The offensive odour soon disappeared after we had irrigated and drained, but the pus burrowed here and burrowed there, inwards towards the pelvis, downwards beneath Poupart's ligament, backwards over the pelvic brim; and a very difficult matter it was to drain the cavity. Caution was essential in exploring so close to the peritoneum, and on three several occasions—on April 22, May 6, and July 9—it was necessary to anæsthetise him, to make incisions and insert drainage-tubes. But after the last day named the pus, which had been flowing in rivers, saturating the dressings through and through, began to lessen; and I find in the notes on July 18 that he was making progress by leaps and bounds. Then also his flexed thigh began to come down; and when I returned to the hospital at the end of September I found him walking about, stout and well. He left the hospital for the country on October 3, his sinuses not absolutely closed, but healing and practically free from discharge. When I saw him early in February, 1891, he was in excellent health, working hard as a labourer; but two of the sinuses were still open, with very slight discharge.

I bring this case forward as an example of extra-peritoneal abscess in association with appendicitis, and to illustrate the dangers which may arise, even where there has been no perforation of the appendix; and I shall use it as a text for advocating early operation in cases of the kind. While perforative appendicitis is commonly the most urgently serious condition with which we may have to deal, in that general fatal peritonitis is so prone to ensue, it is certain that other forms of appendicitis than those originated by concretion may occasionally give rise to very alarming and dangerous

symptoms. The state of the appendix met with in this instance has been noted by Mr. Treves, Mr. Greig Smith, Dr. MacBurney, and others, and is probably due to the occlusion of the lumen of the appendix, either by kink or adhesion, and the collection in its distal part of an increasing quantity of its own mucus, or even of pus. It becomes tightly distended and enlarged, and immediately collapses after it has been opened. At any rate, when thus affected, it acts as a foreign body, and sets up inflammation in the neighbouring peritoneum, and it is doubtless a not uncommon cause of "relapsing" appendicitis. Suppuration is in the end to be feared; and although it is very true that many cases of appendicitis recover without surgical interference, I am nevertheless of opinion that when the symptoms are severe, and when a distinct local swelling is to be felt, whether *per rectum* or through the abdominal wall, the right course—the one which I should prefer to have adopted in my own person—is to open the abdomen. I believe that in this very case an operation in the early stage of the man's attack would have saved him from his nine months of illness and peril, not by killing him, but by speedily restoring him to health. It would have taken a quarter of the time, and all suppuration would have been avoided. That removal of the appendix is to be the one and only treatment in all cases of appendicitis is of course untenable, and it will be a grievous misfortune if surgeons run into the extreme of operating in all cases—an extreme entirely opposite to that which was the invariable custom not long ago.

In every case, however, that comes before them these questions have to be asked: Are the symptoms due to some temporary cause which can be removed by a purge? Are they likely to subside, after the unaided efforts of nature have sufficed to shut off the appendix from further mischief by "adhesive inflammation"? Is suppuration going to follow, and where will the pus make its way? Has there been perforation, and what are the risks of fatal peritonitis? An answer to them is usually most difficult, and may be even impossible—a circumstance which clearly must have great weight in coming to a decision as to operative interference. That we have to do with some form of appendicitis may be settled with comparative ease, but I know no means of telling its exact nature or of foretelling what will be the course of any given case. We are thus thrown back on the present character and severity of the symptoms, which, together with the existence of local

swelling and tenderness, are the only guides we have. The severity of the symptoms is, in other words, the measure of the urgency of the need for operation.

There are, of course, many objections to operating upon and to the exposure of acutely inflamed tissues, but considering that the grade of severity of the inflammation is largely determined by the nature of the exciting cause, I hardly see how we can allow the inflamed condition of the tissues to be a bar to operation, for when the inflammation is greatest, then is the danger of delay the greatest also, and operation is the most urgently demanded. No operation for the relief of appendicitis can ever be a simple matter, but the records of cases seem to show that exploration and release of the appendix are easier in the early stage of the mischief than when adhesions have firmly matted the parts together. I feel sure it would have been so in this case. It is different in relapsing appendicitis, when ordinary prudence would dictate the advisability of operating in a time of quiescence, rather than during an attack of active inflammation. Relapsing appendicitis, however, is destined in all probability to become much less common than it is.

In such a case as that which I have related to-night I can quite believe that the early symptoms were not of such an urgent nature as to raise the question of operation; but which is the greater risk for the patient, early operation at a time when the secondary pathological changes are few and slight, or operation after the formation of a large inflammatory mass, when the leg has become acutely flexed, he is emaciated by suffering and prolonged high temperature, and is in a condition little fitted to bear any surgical procedure? There is to my mind only one answer, and if it be said that notwithstanding the gravity of his symptoms this patient passed through them, I venture to think that he did so at far greater risk to his life than early exploration and removal of the cause of his trouble could have entailed.

I shall presently relate, in conjunction with Dr. Lees, a case in which the very early removal of a perforated appendix was immediately followed by the happiest results, and a like experience has befallen MacBurney, Stimson, and others. MacBurney* records eleven cases of operation in the earliest stages of acute appendicitis with only one death, which in all

* *New York Medical Journal*, 1889, p. 676, "Experience with Early Operative Interference in Cases of Disease of the Vermiform Appendix," by C. MacBurney, M.D.

probability was due to unreleased adhesion, the result of an untreated attack some months before, the formation of which adhesion would presumably have been prevented by operation at that time; and Stimson,* in recording a series of twenty-one cases in the course of twelve months, speaks of "five operations in the early and doubtful stage without a death, and even without a moment's anxiety beyond that which belonged to the taking of the step."

I do not know what is the general practice of hospitals at this time with reference to the admission of cases of appendicitis. Formerly, as we know, all so-called abdominal cases of whatever kind went into the medical wards, and doubtless were happily saved from the surgery of pre-aseptic days, but now that the whole aspect of abdominal surgery has changed I shall have with me the opinion of all surgeons and of not a few physicians when I say that cases with symptoms indicative of acute intra-abdominal mischief ought to be, as they are *ab initio*, surgical, not medical. It should be almost a matter of routine to examine upon admission to hospital all such cases under anæsthetic, that in cases of acute appendicitis we may then and there determine whether there is or is not any local swelling. The presence of a definite swelling in cases of suspected appendicitis would be a guide to the surgeon not lightly to be regarded, should the onset, progress, and gravity of the symptoms point to serious and imminent danger which operation alone might be able to avert or remove.

* *New York Medical Journal*, Oct. 25, 1890, p. 450, "A Contribution to the Study of Appendicitis," by Lewis A. Stimson.

XXIV.—*A case of Relapsing Appendicitis : removal of kinked appendix : recovery.* By Herbert W. Page. *Read February* 12, 1892.

THE history of this case may be told in a few words. It is an example of the repeated disturbances which may be due to simple kink of the appendix without ulceration or perforation.

A medical student, æt. 28, had a first attack of sudden and severe abdominal, chiefly right iliac, pain in May, 1885. It was associated with vomiting. He was in bed for a month, treated by opium, hot fomentations, and light food. He remained quite well until the end of September, 1886, when he had a sudden attack like the first, but certainly more severe. He was treated in the same way, and was in bed for at least six weeks.

His third attack, like the first in its onset and symptoms, began at the end of June, 1890. He was now seen by Dr Luff, who had him removed from his lodgings to St. Mary's Hospital. A distinct lump with abrupt margins was then to be felt in the right iliac fossa, exquisitely tender to the touch, and reaching from the crest of the ilium almost to the middle line. Opium was given by the mouth, and an ice-bag was applied over the swelling, which gradually became smaller and smaller, until at the end of three weeks it had entirely disappeared. This time he was in bed for five weeks.

The fourth and much milder seizure was in the following November, when he stayed in bed for a fortnight and did not have any doctor to see him. His symptoms were of the same character as those of the three previous attacks.

The fifth relapse was at the end of August of this year 1891, and it has to be recorded that since the fourth attack, ten months before, he had never felt quite comfortable, and occasionally had had distinct pain in the iliac region. This last attack began suddenly while he was out walking, on September 1. He was rather better after a night's rest, but about midday on September 2 he was seized with vomiting and violent abdominal pain. Again he was moved to St. Mary's, again a lump was to be felt in the same place as before, and once more after opium internally, and ice out-

side for a period of three weeks, the swelling almost disappeared. Two days went by and he was not so well, and the ice-bag was applied for another week. The lump in the iliac fossa had again appeared; but presently it began to subside, and what was left of it was a more limited induration, of the size and shape of the middle finger, and reaching from a point one inch and a half internal to the anterior superior spine of the ilium downwards and inwards towards the centre of Poupart's ligament. It was thought that this might possibly be the appendix itself. When first admitted to the hospital on September 2 the temperature was as high as 101° F. It remained for a week at 100°, but afterwards became, and continued, normal. All along he had been taking opium by the mouth.

Dr. Broadbent and Dr. Lees saw him in consultation with Dr. Luff at the end of September, with a view to the question of surgical interference. He was himself most wishful to submit to operation, which held out a reasonable hope of freeing him from the dangers and inconveniences of recurrent attacks such as he had had. Accordingly he was transferred to my care on October 5. The moment seemed a favourable one for operation, for his temperature was normal, the swelling, pain, and tenderness were decidedly less, and in himself he was cheerful and well. The only thing troubling him was occasional diarrhœa, which alternated with constipation. A lump was distinctly to be felt at the spot named, but it was smaller than it had been ten days before. (The opium was withheld for two days before the operation.)

The abdomen was opened on October 7 by an incision four inches long, from a point an inch above and internal to the anterior superior spine, downwards and forwards towards, but not quite up to, the middle of Poupart's ligament. The incision was purposely made at a position slightly external to the lump which had been felt through the wall. There were no adhesions at this place, but internal to the lower extremity of the incision the omentum was gathered into a mass, and was adherent to the abdominal wall. In all probability this, and not the appendix, was the lump which had been felt. Here also some coils of small intestine were lightly adherent together. These were freed from each other, held out of the way, and the cæcum was found immediately beneath the centre of the incision. The appendix soon came into view, and its appearance and shape at once indicated the source of the attacks. Three inches and a half in length, it was bound

to the cæcum from end to end by tolerably firm adhesions, and at a point near its apex to a coil also of neighbouring small intestine, and to the omental mass already named. Three quarters of an inch from its origin it was sharply kinked, and beyond this spot its walls were obviously thick and swollen. Having freed it with the scalpel, a silk ligature was tied round it near its base, and it was cut off. The exposed mucous surface was scraped and soaked with perchloride solution, but in other respects the stump was left as it was, and no attempt was made to cover it. The adhesions had bled rather freely, and one ligature had to be used. The wound having been cleansed, and wiped as dry as possible, was closed without drainage-tube. The dressings were changed in a week, and again as occasion required. An uninterrupted recovery followed, without pain or rise of temperature. He was up at the end of four weeks, his bowels acting properly, and without any restrictions as to diet. He left the hospital on November 11th.

The removed appendix showed very clearly that kink, and kink alone, had been the cause of his attacks of appendicitis. There had never been perforation, and there were no signs of ulceration; but at one point, for some reason or other, possibly congenital formation, the appendix was sharply bent upon itself. Accidental circumstances no doubt determined the occasional blocking of it at this place. Forthwith mucus and perhaps fæcal matter collected in the part beyond, inflammation ensued with distension of the appendix, and with swelling and thickening of its walls. The profound local disturbance in the next place caused the general symptoms, the vomiting, the diarrhœa, the intense pain. Protective adhesions formed, with a vast amount of inflammatory lymph, but there was never any pus.

So long as the kink remained the patient must have been liable to a recurrence of the attacks, and in any one of them the results might have been far more serious by reason of the inflammation running on to gangrene. Nothing short of operative measures could ever have undone the kink, and it is pretty confidently to be expected that removal of the diseased appendix will prove to have been the means of having freed him finally from the risks to which he was always exposed.

Analysis by Mr. L. Rogers, House Physician, of 14 *Cases collected from the Medical Journals in which Operations were performed.*

During the first attack of an acute character	3
„ acute stage of third attack	1
„ quiescent period in recurrent cases	10
Total	14

In the acute cases a concretion was found in a perforated appendix in	2
„ „ a gangrenous appendix in	1
In the recurrent cases concretions were found in	2
„ „ an abscess or mucus distending the appendix in	7

Of the 11 recurrent cases there had been	2	attacks in	3	cases.
„	„	„	3	„	4 „
„	„	„	4	„	3 „
„	„	„	14	„	1 case.
			Total		11 cases.

The appendix was removed in all the acute cases, with recovery.
„ „ 9 of the recurrent cases, with recovery.
„ drained in 1 „ „ „

Thus every case recovered.

An Analysis of 100 *consecutive Cases of Typhlitis from the records of St. Mary's Hospital from* 1879 *to* 1890.

Recovered . 82 Fatal . 18

There were recurrent attacks in 18, spread over a time varying from five months to eight years.

Of these there were 2 attacks in	13
„ „ 3 „	3
„ „ frequent attacks in	2
Total	18

	Sex.	
	Male.	Female.
All cases	60	40
Fatal cases	11	7
Recurrent attacks	10	8

	Age.					
	Up to 10 years.	Years 11—20.	Years 21—30.	Years 31—40.	Years 41—50.	Years over 50.
All cases	6	42	37	7	4	4
Fatal cases	1	7	7	1	0	2
Recurrent attacks	1	3	7	4	2	1

	Duration of Illness.			
	2 weeks or under.	2 weeks to 1 month.	1 to 2 months.	Over 2 months.
All cases	37	29	29	5
Fatal cases	13	1	1	3
Cases in which abscess formed	—	1	3	3

In 40 cases a history of a *predisposing cause* was recorded thus:

History of a distinct chill in	11
„ previous local injury in	8
„ heavy meal or of some error of diet in	17
„ constipation for some days before in	3
„ diarrhœa „ „	1
Total	40

An abscess formed in 7 cases; of these 4 were fatal, 3 recovered.

Post-mortem records of 15 *cases.*

Perforation of the appendix was found in	12
Concretions were present in	10
General peritonitis was present in	12
The appendix was gangrenous in	10
An abscess was found in the tip of the appendix in	1
A localised abscess around the appendix in	3

Operations.—In two of these abdominal section was performed under the supposition that internal obstruction was present; the condition was not recognised, and both died.

XXV.—*An unusual case of Sloughing of the Vermiform Appendix.* By Stephen Paget. *Read February 12, 1892.*

J. S., æt. 39, horse-keeper; moderate drinker; good health, save for rheumatic fever six years ago; bowels always regular; had never suffered from constipation or any other trouble of the bowels. On July 22 he awoke with severe pain in the abdomen, which was at first diffused all over the abdomen, but then settled in the right iliac fossa. He vomited once or twice, but not after the first thirty-six hours. The pain in the right iliac fossa remained, and he was tender there. The bowels acted daily; the motions were properly formed, and there was no blood in them.

On the ninth day, July 31, he was admitted to the West London Hospital under the care of Dr. Ball. Tongue moist, thin yellow fur far back on it. Pulse 60, regular. Soft systolic murmur. Abdomen rigid, but not distended. In the right iliac fossa a distinct swelling, acutely tender; resonance over the swelling impaired.

August 1.—Swelling a little larger.

August 2 and 3.—Swelling not quite so tender. Bowels well open with enema, motions healthy.

August 4.—Pain severe. Lower part of the abdomen immoveable and slightly swollen. Deep, well-defined rounded swelling in right iliac fossa, very tender. There was very acute tenderness at "MacBurney's point," that is to say, a point 1½ or 2 inches along a line from the right anterior superior spine to the umbilicus. There was well-marked dulness over the swelling; the skin was not œdematous over it, but there was a doughy feel about the subcutaneous tissue. The temperature was 100·4°.

On August 4 Dr. Ball kindly asked me to see the case, and I made an incision over the swelling. The loose connective tissue was full of serous fluid. The abscess, in a thick capsule, lay immediately beneath the transversalis fascia. I passed an exploring syringe into it first, and then made a free crucial incision. Three or four ounces of thick offensive pus escaped; and, with the pus, came the appendix, having sloughed off at the base. It floated out with the pus. There was a small perforation at its apex, but I found no concretion

in the abscess cavity, nor at any time afterwards in the dressings. I washed out the abscess, and put in a large tube. It healed rapidly, the tube was left out on the fifth day, and the man has had no further trouble.

XXVI.—*Pachymeningitis Hæmorrhagica Interna treated by Trephining.* By Stanley Boyd. *Read February 26, 1892.*

THE following case was under the care of Mr. Johnstone Harris, of Leighton Buzzard, and to him I am indebted for an excellent history of the case up to the date of operation, and for notes of the after treatment and progress. I have had the advantage also of reading the notes of my colleague, Dr. Mitchell Bruce, who saw the patient a few days before operation became necessary.

M. J. T., æt. 40½, an innkeeper, accustomed to live freely, fell from his horse on March 31, 1891. He seemed stunned, and was lifted into a passing cart. On reaching home, twenty minutes later, he was conscious, told how the accident happened, walked upstairs to bed, and went to sleep. When seen by Mr. Harris, about two hours later, he was quite conscious, but somewhat dazed; there was a diffuse swelling over the left side of the head and forehead, but the skin was unbroken; he had a good deal of pain over this side of the head. Mr. Harris kept him in bed for a fortnight, during which time headache was the chief trouble; he then got up and did nothing for a week, and finally returned to business about April 21. He evidently believed himself well, for he then accepted a small compensation from an accident insurance company; but it seems that, although he went about as usual from this time up to June 18, he had not his usual energy, and at various times he complained of headache. About June 18, seven weeks after his supposed complete recovery, he had more headache, and his writing was noticed to be bad; he could neither carve nor button his coat; with his eyes shut he showed an inclination to walk to the right, and he could not put a finger of his right hand into his mouth. From the time of the accident he had lost all sense of smell (which "had never been good") and all sexual power. The above symptoms increased, and, on June 22, Mr. Harris brought the patient up to see Dr. Mitchell Bruce. He was feeling "very ill." On the way up he made stupid remarks for the first time, and laughed without reason. Dr. Bruce noted that T. was sallow, confused and dull. He had

no pain, and no tender spot could be found upon the head. All movements of the right arm could be performed, but they were weak; tactile sensation of the limb was normal. He walked fairly, but said he could not go upstairs well with the right leg. The knee-jerk on this side was sharper than on the left; smell was lost; sight good (read smallest Snellen), and discs normal; pupils ordinary, symmetrical, reacting to light and accommodation. Taste normal (the patient said). Nothing abnormal noted as to the other cranial nerves. Writing very bad. Memory bad for recent events.

Dr. Bruce's *diagnosis* was injury of left motor area, chiefly of arm centre. *Exact lesion*, scar contraction (?).

Treatment.—Low diet, no alcohol, absolute rest, calomel, iodide and bromide of potassium.

Mr. Harris's further notes state that the paresis gradually increased. On June 25 the right arm was almost completely paralysed and the right leg was weak. There was some rigidity of both these limbs. The right eye was congested, the pupil contracted, the lid drooping. He had now severe pain over the upper end of the left fissure of Rolando, increased by pressure. He was drowsy, and the drowsiness increased until on the 28th he became almost comatose, and on that date the leg was completely paralysed. Mr. Harris had suggested trephining on the 27th, but I did not see the patient until the afternoon of the 28th. He then lay almost insensible, and the nurse said that the unconsciousness had distinctly deepened within the last half-hour. Mr. Harris and she agreed that the insensibility was deepening rapidly. Pressure over the left Rolandic area caused movements of the *left* limbs, groans, and facial contractions; but the *right* limbs never moved. The skin was hot, the face red, the pulse rather quick and full, the breathing accompanied by puffing of the lips and slight stertor.

The temperature on the 27th had varied from 99° to 102°, and was 99·4° on the morning of the 28th. The diagnosis now was that an abscess was forming about the right arm centre, and we made preparations to trephine as quickly as possible. The head was shaved, and the patient showed in many ways that the operation was unpleasant to him; consequently, after the scalp had been well scrubbed with soap and water and 1 : 500 mercuric lotion, Mr. Pratt gave chloroform. With Mr. Harris assisting, I turned down a large flap on the left side of the head and removed a ¾-inch disc of bone over about the middle of the Rolandic fissure, the skull being

thin and soft. The point at which the trephine was applied showed a transversely running crack, which I took to be the remains of a fissured fracture; but I have since thought that it may have been due to imperfect blending of two centres in this particular parietal.* On getting out the first disc the dura bulged, and was motionless. I removed a second disc immediately behind the first, and then cut off a corner, making a hole rather larger than half a crown. I then turned down a flap of dura mater, the deep surface of which was adherent; but it stripped off easily, leaving exposed a slightly bulging, motionless, greyish-yellow surface, which I took to be the surface of the brain with pus beneath it; but it required a distinct amount of force to send the knife through this layer, and when an opening was made about 4 oz. of dark red, clear fluid escaped; evidently a cystic clot had been opened. The escape of the fluid caused absolutely no change in the symptoms. A tube was placed in the cavity of the clot, and brought out through a hole in the scalp; the dural and cutaneous flaps were fixed in position by sutures, and a mercuro-zincic cyanide dressing was applied. The patient was put back to bed about 6.30 P.M., apparently more deeply comatose than at the start. He was in the same condition at 9 P.M., and I thought he would almost certainly die. We agreed to give some croton oil. When Mr. Harris forced the teeth open at 11 P.M. to place the oil upon the patient's tongue he seemed to awake, and said, "Good evening, doctor," and immediately went off again. During the night he roused up, and talked incessantly. The slow recovery of consciousness may perhaps have been due to rigidity of the cyst-wall preventing expansion of the brain.

Next day (Monday, June 29) he seemed better, and could move both arm and leg: the discharges came through the dressing, which was therefore changed in the evening; the wound looked well, and there had been a good deal of bloody oozing. He had no sleep on the Monday night, was delirious, and was kept in bed with difficulty; at the dressing on Tuesday there was much less discharge from the wound. The temperature in the evening rose to 101°. On the Wednesday, Thursday, and Friday (July 1—3) marked delirium continued, but more and more sleep was obtained, and the temperature rose but little above normal (99·4° twice) after the 1st. The cha-

* The discs were shown at the meeting of the Society, and the opinion of the majority of the members present was that the fissure was probably the result of fracture.

racter of the delirium rendered it probable that it was delirium tremens. He became quite rational about the 8th, and said he felt "quite well" on the 11th. Under Mr. Harris's care the wound had done well throughout. On the 11th the skin sutures were removed; the tube was withdrawn, cleaned, shortened, and replaced, as there was still a little discharge from it, but there was never any pus. He left his bed on July 29, went downstairs on August 5, and to the sea-side on August 15. The urine contained neither albumen nor sugar before operation.

On August 27 I received a note from T. showing that his handwriting was as good as ever. He called on his way up from the sea-side, looking very well, "never was better in his life;" walks perfectly; right grasp strong. A soft pulsating spot could be felt at the seat of trephining, but a good deal smaller than the original hole; it causes no inconvenience. He is still (November) in perfect health.

The questions of chief interest in connection with the above case are the late onset of the signs of compression, and how they were brought about. At first no other thought occurred to me than that the clot which we found was due directly to the injury on March 31; but on this view I could not explain to myself satisfactorily the late onset of compression. The occurrence of œdema from pressure of the clot on efferent cerebral vessels and the establishment of a *circulus vitiosus* seemed impossible. I am now inclined to believe that on or before the 18th June a spontaneous superficial hæmorrhage began into the subdural space; the outer layer of the clot was tough and decolourised, but not more so, I think, than ten days would allow of. This view even does not account for the rapid increase of insensibility towards the end of the case, for there was no sign of any quite recent effusion of blood. Nor was there any history of fits or convulsive twitchings such as generally mark the progress of cortical hæmorrhage over the motor area. But convulsions do not seem to have been common in cases of pachymeningitis, nor would they seem to be at all necessary symptoms either upon Huguenin's view that the blood escapes from the veins of the convexity, or upon Virchow's that it comes from an inflamed surface on the inner aspect of the dura mater.

May, 1892.—The patient is very well; he has hunted regularly through the winter; it is difficult to detect any soft spot in the scar.

XXVII.—*A case of Cholelithiasis: removal of impacted gall-stones through an incision in the common duct: recovery.* By J. Bland Sutton. *Read February* 26, 1892.

On September 15, 1891, I saw in consultation Mrs. P., æt. 58, who was suffering severe pain consequent upon the impaction of gall-stones in the common bile-duct. The history of the case was so clear, and the patient had suffered from so many attacks in the preceding ten years, that there was no doubt as to the nature of the illness.

On September 1 the patient was seized in the middle of the night with severe pain in the right side; this pain persisted up to the time of the consultation. She has vomited once during the attack (September 3). In a few days there was delirium, and this was followed by feebleness, great prostration, drowsiness, and intense jaundice. The stools became quite white, and the urine heavily charged with bile.

Morphia had been freely administered by the skin. As the patient had passed gall-stones on previous occasions I deemed it prudent to wait at least forty-eight hours before resorting to operative measures. The pain continuing, the woman was removed into the Middlesex Hospital September 17. She was so fat that it was impossible to ascertain the condition of the parts in the region of the gall-bladder, but the liver appeared to percussion to be of natural size; manipulation produced great pain. On September 18, as there was no abatement of symptoms, I explored the parts through an abdominal incision made vertically over the region of the gall-bladder. On reaching and opening the peritoneum I came upon omentum thoroughly adherent to all the surrounding structures and peritoneum. On tearing through these adhesions a rounded lump of fat was detected on what appeared to be the under surface of the liver, for, strange as it may seem, the liver was not visible at any time during the operation. Some hard bodies were felt in the lump of fat, and on incising it three polygonal calculi were found within it. This fatty lump was in reality the shrunken gall-bladder, and I should imagine that it had long ceased to contain bile. All attempts to pass a probe from the gall-bladder into the duct were unsuccessful.

It was now necessary to search for the duct. After separating the adherent omentum and transverse colon I recognised the common duct, distended with calculi, running downwards to the duodenum. Attempts were made to push the calculi into the duodenum. These failed. On pushing the calculi upwards two of them slipped easily into the hepatic duct, but could not be made to enter the gall-bladder, as the cystic duct was either very narrow or, what was very probable, obliterated. Two calculi lodged near the termination of the duct could not be moved in either direction. As the general peritoneal cavity was shut off by adhesions, I incised the common duct near the duodenum, and at once extracted the two obstructing calculi, and was able to recover one that had slipped back into the duct, but there was a fourth which I could not find. Immediately the incision was made into the duct there was an abundant flow of bile. A glass drainage-tube was introduced, and the wound closed with sutures in the usual way.

During the next three days bile escaped in large quantity through the tube, the jaundice gradually diminished, bile was scarcely appreciable in the urine, the fæces assumed their characteristic colour, and the patient was free from pain.

From the fourth to the ninth day there was no improvement; bile ceased to flow from the tube, and the fæces became clay-coloured. I attributed these symptoms to re-descent of the calculus which had been pushed into the hepatic duct during the operation.

On the evening of the tenth day after the operation the patient was seized with sudden and intense pain in the right side. In the early morning this passed away. On dressing the wound the tube was freely discharging bile. From that day the jaundice rapidly began to fade, the fæces assumed a normal colour, the track of the drainage-tube rapidly granulated, and the patient left the hospital convalescent October 13, after a sojourn of twenty-five days.

On November 14, 1891, her doctor, Mr. Owen Coker, writes me to the effect that "the patient has continued in excellent health."

I have ventured to report the details of this case because it demonstrates that there are conditions in which calculi may be removed through an incision in the *common bile-duct*, and the patient recover without the inconvenience of a biliary fistula.

XXVIII.—*A case of Fusiform Sarcoma of Laminæ of Dorsal Vertebræ: pressure upon spinal cord: rhachiotomy: cure.* (*From notes by Mr. Davies-Colley and Mr. A. G. Cooley.*) By N. Davies-Colley. *Read February* 26, 1892.

Alice P., æt. 23, a washer in a steam laundry, and unmarried, was admitted into Guy's Hospital under my care on the 11th of last July, suffering from symptoms of paralysis apparently due to an old angular curvature of the spine.

About seven years ago she had a fall from a height of three feet, and struck the back of her head and the middle of her spine. At first she noticed nothing wrong, but six weeks later she began to suffer from shooting pains in the back and round her chest. She went to a doctor, who said she had spinal curvature, and she was kept in bed for six months. She then wore a plaster-of-Paris jacket for another four months. After this she went to work, and suffered no more pain or trouble till two months ago. The pains now returned in her chest and back, and she noticed that her feet and ankles were weak, so that she frequently fell down.

One month ago she began to lose sensation in her legs, and there was some incontinence of urine and fæces. For the last two weeks she has been unable to walk. There was no family history of tubercular or other disease.

On admission the patient, though somewhat pale, was well nourished and of fairly healthy appearance. She had a large boss in the neighbourhood of the spines of the fourth, fifth, and sixth dorsal vertebræ. The projection was rounded, of bony hardness, and occupied the right vertebral groove as well as the spines of the vertebræ; and I thought that she had some bursal thickening over the prominence of an angular curvature, which gave it a less defined and more diffused contour than usual. There was no pain. Both legs were nearly completely paralysed. There was also partial anæsthesia in both legs, but over a greater area in the left than the right. The legs were muscular and firm, and not at all wasted. The knee-jerks were present; there was plantar reflex and well-marked ankle-clonus on each side. Micturi-

tion was frequent, but as long as she kept in bed there was no involuntary passage of urine or fæces.

The patient was kept in bed, but no improvement followed; so on July 28, seventeen days after her admission, ether was administered, and an incision was made in the middle line upon the swelling in her back. It was at once found that a smooth whitish lobulated growth, about four inches in vertical by two inches in transverse measurement, occupied the right vertebral groove, projecting across the middle line so as to overlap the spines of the vertebræ. It was easily separated by means of a blunt dissector from the back muscles, and before lifting it away from the groove it was found to be attached to the right side of the laminæ of the fifth and sixth dorsal vertebræ. This part of the laminæ was quite soft and crumbling, so that they were easily divided with a bone forceps. The spines and laminæ of these vertebræ were removed with the tumour, and an opening was made into the spinal canal about an inch long by three quarters of an inch broad. The dura mater was healthy and not adherent to the growth, so it was not interfered with. The spinal cord was flattened and soft. A rounded mass of the growth three quarters of an inch in diameter had now to be carefully dissected out from between two of the transverse processes. It must have lain in contact with the sides of the bodies of the vertebræ. A rather free hæmorrhage which welled up from the spinal canal was easily controlled by sponge pressure. The operation was performed under an irrigation of perchloride of mercury solution (1 in 2000). A tube was inserted, and the soft parts brought together by gut sutures. The wound healed rapidly without suppuration. The nerve symptoms began to improve the day after the operation, when the patient found she had good control of her urine. She was able to push a chair along in front of her by the 4th September; and by the 10th, rather more than six weeks after the operation, she could walk without any help. The sensation had for some time been restored, and there was no further trouble with respect to micturition or defæcation.

Microscopic examination of the tumour showed an abundance of small fusiform cells mingled with fibrous tissue. I presume, therefore, that the growth was a fibro-sarcoma growing from the periosteum of the vertebral laminæ.

I saw the patient again last Monday (February 22, 1892). She was in good health, and had been at work since Christ-

mas. There was no appearance of growth or even deformity about the back, and no paralysis. Her only complaint was that she suffered occasionally from pain in her side.

I have thought it right to bring this case before the Society on account of the rarity of paraplegia from pressure of a primary extra-dural tumour, and the very few recorded cases in which such a growth has been successfully operated on. I would also call attention to the curious mistake in diagnosis which led me to confound it with a case of angular curvature. When she was admitted I noticed that the patient was much more healthy and muscular than is usual with those who have suffered from long-standing spinal caries. This and the rounded character of the projection ought to have aroused my suspicions. But the rarity of these growths, and the frequency of angular curvature in many different forms, must be my excuse for the mistake. I would conclude by suggesting that the mongrel word "laminectomy" which has recently crept into medical literature might very well be discarded, and the term "rhachiotomy" applied to the operation by which the spinal column or rhachis (ῥάχις) is opened.

XXIX.—*A case of Nerve Grafting.* By Damer Harrisson (introduced by Dr. Hadden). *Read March* 11, 1892.

THE suture of nerves as a surgical procedure had a very fitful existence until 1878, when Gluck, of Berlin, published the results of his experiments upon fowls and rabbits, and proved that where apposition of divided nerves is perfect the degeneration of the distal end is slight, there being no axis-cylinders destitute of myeline to be seen, the axis-cylinders not being destroyed, and at the end of the fourteenth day the axis-cylinders, both in the cicatricial tissue and peripheral end, are to be seen, though without myeline, the ends of the nerves being connected by nerve-fibres destitute of myeline after eight days, and from this time a gradual formation of myeline sheath is to be observed, functional power being restored in the fowl in four days, and ten days after section of the vagus in the rabbit.

These observations gave further encouragement in the use of the suture, and from this time to the present the recorded cases in which the operation has been performed have rapidly accumulated.

In the *treatment* of those cases in which the resected nerve ends cannot be brought into apposition several methods have been advocated or tried; the only one, however, which has yet been attended with satisfactory results is that of nerve grafting. This was first suggested by the further experiments of Gluck (published in May, 1880), who grafted portions of the sciatic nerves of rabbits between the separated ends of the sciatic nerves of fowls, the conducting power of the nerves being restored by the end of the eleventh day. He dissected the nerve out eleven days after operation, and having isolated the nerve from the neighbouring tissues by means of a glass plate, he induced contractions in the muscles supplied by the nerve below the site of operation by irritation above that point.

The first surgeon to act upon the teaching of Gluck was Kaufman, in December, 1880, who grafted a portion of the sciatic nerve of a dog between the separated ends of the musculo-spiral without success.

The *second operation* was by Tillman in June, 1885, in a case of separation between the ends of both median and ulnar. Sensation returned at the end of four, motion at the end of nine weeks.

The *third case* was that of Dr. Gessung, of Vienna, in a case of recurrent neuromata at the point of division of the median into two branches, behind the annular ligament of the wrist.

The graft was from the sciatic nerve of a rabbit at its point of division, 6 centimetres in length, and this was sutured between the three ends of the median. Sensation began to return in two months. The result as to motion is not recorded; but one remarkable result of the operation was that no further tendency to neuromatous degeneration has since shown itself in the original nerve, which previously to this had repeatedly suffered from this disease.

The *fourth case* was Mr. Mayo Robson's in September, 1888 (and reported to this Society), for separation of nerve ends after excision of a neuroma of the median. The separation was 2 inches in extent. Forty-eight hours after the excision 2½ inches from the posterior tibial of an amputated limb was sutured between the separated ends. Sensation began to return in thirty-six hours; motion began to return in short abductor and flexor of the thumb in five weeks; functions completely returned in five months.

The *fifth case* was Mr. Ward's, of Leeds, in January, 1889. Separation after excision of neuroma of median, 2½ inches in length, taken from the median of an amputated arm. Sensation and motion were slow in returning; seventeen months elapsed before sensation could be localised. Trophic changes occurred; muscular wasting, glossy skin, bulla at the end of one finger. These gradually disappeared, and a fair amount of power returned to middle and index fingers, but abduction and opposition of the thumb remained lost.

The *sixth case* was another by Mr. Mayo Robson, in February, 1890. Two inches of spinal cord of a rabbit was sutured between the separated ends of the median in the upper arm. Sensation began to return in eleven days; motion of wrist and fingers began to return ten weeks afterwards, and became fairly good in five months; the ulnar, which had been sutured at the same time, did not recover.

The *seventh* and *eighth cases* were operated upon by Mr. Atkinson, of Leeds, in February and April, 1890, respectively.

The first of these two cases was one in which a portion of the sciatic nerve was accidentally removed during an operation of excision of the hip, but immediately replaced by suture Sensation began to return in the toes on the fifth day, and could be localised in any part by the fifteenth day. The condition as to motion was not recorded, but only six months had elapsed when the case was reported.

The *second of these cases* was one of separation of ends of the ulnar in the forearm, 2 inches in length. A graft 2½ inches was taken from each sciatic nerve of a rabbit, the two grafts being fixed in position side by side. Sensation began to return on the eighteenth day in the ring and little fingers, and was completely restored in three months, except in the two last phalanges of the little finger. In three months the patient could flex all the fingers on the palm except the little finger, which stopped short by ½ an inch.

The *ninth case*, which is my own, was that of a boy aged 13, who was admitted into the Liverpool Northern Hospital on the 4th of June, 1891, with the following history:—Eleven weeks previously, while at work in some glass works at St. Helen's, a large plate of glass fell upon the front of the right wrist, dividing the median nerve and all the long flexors, except the flexor carpi ulnaris. The doctor who first attended to the case sutured the divided structures and bandaged the hand and fingers in a flexed position. The healing of the wound was attended with suppuration and some sloughing. Upon admission into the Liverpool Northern Hospital the fingers of the right hand were found to be in an immoveable flexed position, paralysis, both of sensation and motion, being complete, corresponding to the distribution of the median nerve. *Trophic changes* were also present, the hand being blue and cold, the skin glossy, and the short muscles of the thumb extremely atrophied.

Upon the site of the original injury being explored the flexor tendons were found to be matted together by cicatricial tissue.

The flexor sublimis digitorum could not be found, and nearly 2 inches of the median nerve had been destroyed, leaving a separation between the ends to this extent.

The flexor tendons were dissected from each other and from surrounding adhesions. The ends of the median nerve were then freshened—which increased the separation to fully 2 inches—and a graft 2½ inches in length taken from the sciatic nerve of a recently killed kitten was fixed in position

by one fine catgut suture at each end, which passed through the substance of the nerve.

The fingers were straightened, and the hand and forearm fixed upon a posterior rectangular splint, the hand being flexed, but the fingers kept in a straight position.

The after progress of the case was as follows:

The wound healed by first intention. *Sensibility* to the prick of a pin began to return to the palm of the hand and over the first phalanx of the thumb at the end of forty-eight hours, and soon afterwards (third day) became extended to the areas over the first phalanges of the index and middle fingers and the terminal phalanx of the thumb, and, eventually, over the middle phalanges of the index and middle fingers.

Sensation is still impaired over the middle phalanges and the first portion of the terminal phalanges of the fingers, but has not returned in the tips of the fingers. There is also transference of sensation present, sensation over the first phalanx of the index finger being referred to the corresponding area of the middle finger.

The nutrition of the hand became much improved by the end of two and a half to three months after operation; the glossiness and blue colour of the skin disappearing; the surface becoming nearly as warm as the left hand, unless exposed to cold, and a greater fulness and thickening becoming apparent over the short muscles of the thumb. *Motion* showed no signs of returning until the end of five months, when slight voluntary movement was observed in the short muscles of the thumb. These movements are still feeble more than eight months after the operation, but have much improved during the last three months, and the patient can now oppose the thumb to the index finger, good movement being present in the abductor pollicis. The flexion of the fingers upon the palm is not perfect, owing probably to the destruction of the flexor sublimis digitorum.

The tenth and last case is one recently performed by Mr. Mitchell Banks, of Liverpool, upon the ulnar nerve at the elbow, after incision of a neuromatous tumour, 4 inches being grafted from the sciatic nerve of a dog. Sensation is said by the patient to have returned in thirty-six hours.

This small number of cases is, of course, too few to generalise from; but, so far, the results are as follows:—Of the ten cases three have been perfectly successful, six partially successful, and only one failure.

Of the six partially successful cases four have made no

recovery as to motion, but of these one has not been yet sufficiently long under observation.

Of the remaining two, one (which is my own case) has been under observation only nine months, and is still improving.

All these cases, with the exception of my own, were cases of primary grafting, and it is among these—as in the case of primary simple suture of nerves—that return of complete motor function is the most rapid, the shortest time being five months.

In my case of secondary nerve grafting (eleven weeks after injury) the motor functions are not yet completely returned nine months after operation, but are still improving, and may go on doing so to complete restoration during the next year or two, as in the case of *secondary* simple suture.

This difference between the two kinds of cases appears to me to be mainly due to the trophic disturbances which are present when grafting or simple suture is performed as a secondary operation. The degenerated muscles must require a considerable time before they can be remade, although nerve continuity may have been rapidly established.

In none of the successful cases of primary simple suture, or primary nerve grafting, are trophic changes mentioned; and in two successful cases of my own, of simple suture of the median, no such changes appeared.

This evidence seems to prove the correctness of Gluck's observations that primary suture prevents any but very slight degeneration in the distal end of the nerve.

The cases in which symptoms of motor power are longest delayed in the case of simple secondary suture are those which have been operated upon from one to six months after injury, being the period during which the distal end of the nerve is in the extreme condition of degeneration.

This, however, only applies to motion, sensation, even in these cases, often returning in thirty-six to forty-eight hours, some axis-cylinders (probably of the sensory fibres) never being destroyed, but retaining their power of conduction, either by way of a loop line (through the interlacement of nerve-fibres) or by the restored continuity in the nerve.

In the latter case sensation must be conveyed by nerve-cells at the point of suture, and not by axis-cylinders, and it is difficult to understand how accurate localisation (such as is seen in some cases) can be conveyed in this way.

On the other hand, the loop line theory quite fails to explain

those cases of secondary suture which have shown no return of sensation, even many months after injury, until the nerve ends are freshened and sutured together. It has been suggested to me that the operation sets up a condition of excitability in the nerve that starts the loop line; but, if this could be so, how is it that the original injury sometimes inflicted under similar conditions does not have the same effect, the function of sensation being in abeyance for months and years until the operation of suture or grafting is performed?

May it be due to a combination of these factors, namely, the increased excitability in the nerve assisting in the conveyance of an impulse along both the loop line and the nerve, at the point of suture, at the same time, and in this way giving rise to localised sensation?

One further point of interest in these cases is that a nerve may sufficiently recover to conduct sensation and influence nutrition without regaining its motor power. *This* is partially to be observed in Mr. Ward's case of nerve grafting, but is better illustrated by a case of simple suture of Mr. Weir's, and another of Mr. Ashhurst of America.

In both the sciatic was the nerve sutured, in the one nine years, in the other three months after injury. In both cases there was a total loss of sensation and motion, and trophic ulcerations over the foot. Sensation returned, all the trophic changes disappeared, but motor paralysis remained.

In conclusion, I think that the recorded cases of nerve grafting, although few in number, are encouraging, and give us fair ground for hope that this operation will be soon established as another useful resource in surgical procedure.

XXX.—*Three cases of Peritonitis from Hæmorrhage: abdominal section in a case of ruptured spleen, and in two cases of ruptured liver.*

By Herbert W. Page, M.C.Cantab. *Read March* 11, 1892.

As a contribution to the operative treatment of abdominal injuries without external wound, of which examples were brought before the Society in the session 1887-8 (vol. xxi), I hope that a short account of three cases, one of ruptured spleen and two of ruptured liver, may be deemed of interest, even though in all of them the result of operation was unsuccessful.

A boy, æt. 14, was admitted to St. Mary's Hospital at 5 P.M. on April 18, 1888, complaining of great pain and tenderness over the abdomen. Exactly twenty-four hours before, while crossing a shed in the railway works at Neasden, he tripped up and fell suddenly and heavily on one of the metal rails which ran in the length of the building. The rail struck him right across the abdomen just below the umbilicus. He became unconscious, and in this state he was lifted up by workmen, placed on a trolley, and taken as far as the St. John's Wood Road Station. On arrival there he had regained his senses, and he walked thence to his home, nearly half a mile. Later in the evening he walked to the Paddington Green Children's Hospital. A bandage was there put round his belly, and he walked home. He had a good night, dressed himself early on the morning of the 18th, and then had a natural action of the bowels. Soon afterwards he was seized with intense abdominal pain, and he had to be undressed and put to bed. The pain continued to get worse, and between 4 and 5 P.M. grew so bad that his mother took him in a cab to St. Mary's. He was unable to walk. At this time he had many indications of peritonitis, abdominal tenderness, distension and rigidity, thoracic breathing and anxious face. His temperature was 100° F., and at 100 also beat his pulse. He was able to pass water. The liver dulness was normal. He was not sick. His pain was greatest in the region of the spleen, and there he complained the most when taking a deep breath. Mr. Norton, my house surgeon, ordered opium and hot fomentations, not thinking the boy was bad enough to send for me.

On the following morning he was easier and looked better, but his temperature had been up to 101·8° F., and his pulse was quicker. I saw him for the first time at half-past two, and had the advantage of a consultation with Mr. Silcock, to whom I think it was in the main due that we resorted to operation. I did not believe that there was rupture of the bowel, but we both of us inclined to the opinion that there had been some injury of or in the immediate neighbourhood of the spleen. The abdomen was greatly distended at the time of operation, and the peritoneum when exposed in the incision, which had been median below the umbilicus, bulged forward of a deep purple colour. The peritoneal cavity contained a large quantity of dark fluid blood, and this was forthwith entirely removed by repeated flushing with hot boracic lotion. The intestines were carefully examined from end to end, and were free from injury, but there was no question as to the presence of very general peritonitis, for their surface was distinctly rough, and many of the coils were greatly distended with flatus. A long rectal tube very much reduced this distension at the time, and greatly facilitated, moreover, the return of the coils into the abdomen. The lad bore the operation well, and there was no collapse after it. It had confirmed the diagnosis of injury of or about the spleen, but it seemed improbable that the injury had been extensive, and as all bleeding had clearly ceased I deemed it unnecessary to explore this viscus.

The following morning, April 20, the boy was undoubtedly better, his temperature was 99·6° F., he had lost the anxious expression, he had decidedly less pain, and he did not flinch at all when the hand was moved over the abdomen. He said himself that he had far less pain than before he came to the hospital. At three in the afternoon, however, either because or in spite of an injudicious drink of lemonade, he was violently sick, and afterwards became restless, and in many ways, as shown by his pulse, respiration, and temperature, he was in the evening not so well. He had a sleepless night, and was so obviously worse in the morning that it seemed useless to wash his peritoneal cavity out again. He died at 10 P.M., four days and five hours after the accident.

The necropsy revealed a small superficial rent in the anterior margin of the spleen and its peritoneal covering. The rent, which was about an inch long, was closed by an adherent clot. No blood or other fluid was found in the peritoneal cavity. Some few coils of intestine, especially those lying

above the umbilicus, were slightly adherent together by recent lymph, but Mr. Silcock, who made the examination, considered that there was less general roughness than at the time of the operation. For the most part, in fact, the visceral and parietal layers of the peritoneum were smooth and shiny. Except at one small spot the operation wound was perfectly healed.

I think that in this case we must have come very near indeed to saving the patient's life, and I believe that this might have been attained had his peritoneum been washed out earlier than forty-six hours after the accident. Clearly, if a patient is to be saved from extension of peritonitis and septic absorption, the sooner the abdomen is opened the better, and it is a wise practice for the surgeon to be summoned immediately to the hospital whenever a case of abdominal injury has been admitted to his wards. No matter what be the precise lesion, recovery from general peritonitis of traumatic origin is most uncommon; and although in a large number of instances the extent and character of the injury will almost certainly forbid success from abdominal exploration, there yet are cases, and this was one of them, in which peritonitis has been started, not so much by the lesion of a viscus as by the stagnation of blood poured into the peritoneal cavity, and in which the most likely means, and as far as I know the only means, of putting an end to the peritoneal inflammation is by thoroughly cleansing the peritoneum and ridding it of all fluids which are foreign to it.

In coming to a decision as to the need for operation we must not forget the lesson which has been taught over and over again, how small is the reliance to be placed on the conduct of the patient after his accident as a guide to the nature of his injury, for even after rupture of bowel—the gravest probably of intra-abdominal lesions—it is not uncommon for the man to walk to the hospital, complaining merely of pain. Undoubted evidence of commencing peritonitis after an abdominal injury without external wound means something serious, and ought to be regarded as an indication for abdominal exploration, a comparatively harmless procedure in itself, because the probability is overwhelming that the peritoneal inflammation will spread, and every hour makes a difference to the patient's prospect of recovery.

I feel regret that in this case I did not wash out a second time, when on the evening of the 20th and the morning of the 21st there was evidence of more peritonitis. The first operation had done him no harm; if we rightly estimated his con-

dition he was the better for it, and at a second washing there would have been no call for an examination of the intestines. Truly the boy's state then seemed hopeless, but unconsciously also I may have been deterred from operating by a doubt, which I feel no longer, that it was the proper thing to do. After such an injury as he had sustained the only possible result perhaps was death from peritonitis, but I rather lean to the more cheerful view that the operation of washing out the peritoneum very nearly achieved the success of saving his life. It is certain that it in no wise hastened his death.

The two cases of ruptured liver were less favourable, and give little support, I am afraid, to the optimistic opinion so far advanced.

A boy, æt. 10, was admitted on July 24, 1888, after having been run over by a hansom, the wheel of which passed over the abdomen just above the umbilicus. The accident happened at 9 P.M. There was no external wound and only slight shock. On the following morning, however, his belly was somewhat distended, and he complained of supra-pubic pain. In the course of the day the pain became more general, and there was less movement of the abdominal wall in breathing. At 10 P.M. there was more distension, and his thighs were flexed. He had passed water and had not vomited. There was no general pallor to indicate loss of blood, but his symptoms were suggestive of injury to the liver and intra-peritoneal bleeding. The hepatic dulness was normal. I opened the abdomen at midnight, and, as in the other case, washed out a large quantity of fluid blood from the peritoneal cavity. The intestines were uninjured. There was obviously slight bleeding going on in the neighbourhood of the liver, but his condition forbade any prolonged search for the bleeding point. I therefore put in a glass drainage-tube when closing the wound. The boy rallied well, and for some hours was distinctly easier, but towards the middle of the following day he became restless, and from that time failed. He died at 8 P.M., forty-seven hours after the accident, and nineteen after the operation.

The necropsy disclosed fracture of the ninth, tenth, and eleventh right ribs external to their angles, and the right posterior angle of the right lobe of the liver was severely lacerated and contused. The intestinal coils were inflamed and adherent at the lower part of the abdominal cavity, which contained a small quantity of fluid blood.

The third and most recent case is the following:—A man, æt. 22, had been violently struck over his liver, and hurled into the water by the tiller of his barge, which he was steering along the Regent's Canal, one hour and a half before his admission to St. Mary's on the morning of April 15, 1891. He vomited directly he had been got out of the water. On admission he was in a state of extreme collapse, wet through, cold, and almost pulseless. He complained of occasional pain in the right hypochondrium, but there was no mark of bruising. Pain and tenderness increased in the course of the morning; his knees were drawn up, respiration was shallow and laboured, and he was frequently sick. In the course of the afternoon, however, he decidedly improved. There seemed to be no urgent reason for operating, and it was thought that his original collapse might have been to a great extent due to his having been nearly drowned. His urine was free from blood, but his pallor and intense craving for fluid suggested bleeding from one of the viscera. The area of hepatic dulness was normal. The next morning he was not so well, having begun to vomit again at 6 A.M. Respiration was entirely thoracic, and the abdomen was now much distended. After consultation with my colleague, Mr. Pepper, I opened his abdomen, and found the peritoneum full of blood. This was completely washed away. The intestines were uninjured, and I was unable with the hand to detect any rupture of liver or spleen. The operation increased his collapse, and he died an hour after his return to the ward, or thirty hours after the accident.

A deep radiating laceration, the edges of which were firmly sealed together by blood-clot, was found on the upper surface of the liver, and from the anterior border, to which it extended, this fissure ran to the under surface, and then forked upwards and downwards in the substance of the viscus for three and two inches respectively. This part also was sealed with blood. The right half of the diaphragm was contused. Furthermore the left perinephral tissues were infiltrated with blood, and a laceration was found in this kidney which reached from the posterior border through the substance nearly as far as the hilum, but not involving the pelvis or calyces. There was very general peritonitis, the intestines being sticky and the coils dilated. This case was unquestionably the worst of the three, from the first beyond the reach of surgical relief. It is certain that no operation could have enabled us to close the lacerations in the liver more

securely than they were found closed and sealed by blood-clot, and the only thing conceivable is that the discovery in the opened peritoneum of the immense quantity of extravasated blood might have suggested the advisability of immediate transfusion. The hæmorrhage in this case was much greater than in the other two, and loss of blood must have had much to do with causing the man's death.

It is naturally more gratifying to a surgeon to relate and for a society to hear the histories of successful cases; yet from unsuccessful cases much is often learned. Death from the injury and failure of operation may be alike inevitable in all such cases as these, but I am rather inclined to the opinion that in abdominal exploration and peritoneal flushing lie the possibility and promise of saving life, when the actual lesion happens to be small, and the real danger depends upon peritonitis, the consequence of intra-peritoneal effusion of blood. I do not forget that recovery occasionally follows after even very severe abdominal injuries, and that some surgeons are opposed to exploration as adding nothing to the chances of life. Mr. Hutchinson is one of these, and in a recent number of his *Archives of Surgery* (vol. iii, p. 104) he writes that "natural processes are more efficient in bringing about reparation than some modern authorities would have us believe." By all means let us remember the reparative powers of nature when in the presence of an abdominal injury, but I would urge the desirability of exploration when peritonitis has unquestionably begun, should other considerations not have seemed to warrant it sooner. If there were any doubt as to the diagnosis before operating, the presence of blood in the peritoneum might easily be determined by the use of a fine aspirating needle. From his experiments on peritonitis, related to the sixty-second Congress of German Naturalists, Orth came to the conclusion that pure blood in considerable quantities was sufficient to set up peritonitis, not so much from the presence of bacteria as from the development of some fibrin ferment (*Centralbl. f. Chir.*, 1889, p. 849). These cases support his opinion, for in each of them the injury was followed by a general peritonitis, which had no other obvious cause than the blood stagnant in the peritoneal cavity, and in quantities too large for the peritoneum itself to absorb and remove.

XXXI.—*A case of Mediastinal and Pulmonary Carcinoma associated with retraction of the chest wall.*

By Percy Kidd, M.D. *Read March* 11, 1892.

Thos. G., æt. 52, a butcher, was admitted into the Brompton Hospital under my care, in the absence of Dr. Williams, on April 3, 1890, complaining of cough and shortness of breath.

The family history was unimportant.

For twelve months the patient had noticed a slight cough, but had felt in perfect health till six months previously, when he got wet through and caught a severe cold. His cough now became much worse, and compelled him to take to his bed about Christmas, 1889. Since that date he had been confined to bed suffering from severe cough, accompanied by pain in the left side; thick white expectoration occasionally streaked with blood, shortness of breath, and loss of flesh.

On admission the patient was a thin, pale, prematurely old man.

No clubbing of the fingers.

The chest wall was much retracted on the left side over the whole front, and was almost motionless. Anteriorly there was great dulness on percussion, and inspiration was very feeble throughout, but at the apex faint blowing expiration could be heard. No adventitious sounds. Behind there was extreme dulness over the upper third, the resonance being much impaired to the base. At the supra-spinous fossa weak inspiratory and faint blowing expiratory breath-sounds with obscure crackling râles on cough. Breath sounds and vocal fremitus absent over the lower two thirds. On the right side no abnormal signs were detected. The apex-beat of the heart was in the normal position, and the heart sounds were healthy. There is little to note as to the subsequent course of the case beyond progressive failure of health and strength. The breath sounds became bronchial at the left supra-spinous fossa, dyspnœa became more marked and constant, and the patient had great difficulty in expelling his copious expectoration.

The sputum was repeatedly examined for tubercle bacilli, with a negative result.

The temperature presented an irregular remittent character throughout, varying from 101° or occasionally 102° in the evening to 99° in the morning. Towards the close the temperature gradually declined. The patient sank exhausted on May 26, 1890.

The following is a brief abstract of the autopsy. The upper lobe of the left lung was densely adherent to the chest walls. In the fork of the trachea a firm whitish growth of the size of a swan's egg, with smaller masses of similar nature extending thence along the left bronchus into the upper lobe of the corresponding lung, especially towards its inferior border. On section the lobe presented a marbled appearance, due to coalescing nodular whitish growths intersected by pigmented bands of indurated lung tissue. In the upper part there were some small irregular cavities, and towards the lower margin in the postero-lateral region there were two excavations of the size of a small Tangerine orange. The lower lobe was partially collapsed and œdematous, the small bronchi uniformly dilated and filled with pus. No growth in the lower lobe.

The left lung was much contracted, especially the upper lobe.

Right lung large and œdematous, but free from growth.

The left main bronchus slightly but uniformly infiltrated with firm growth from its origin to the part where the branch to the upper lobe is given off, causing considerable narrowing of the tube, but nothing approaching occlusion.

The adrenals were slightly enlarged and contained whitish growth. There were a few small nodules in the jejunum, one of which had ulcerated. In the stomach there was a chronic round ulcer on the posterior surface close to the lesser curvature, but no evidence of carcinoma.

Kidneys slightly contracted and granular.

Left ventricle of the heart slightly dilated.

Microscopical examination showed that the growth was carcinomatous.

The interest of the case lies in the existence of retraction of the thoracic parietes, and it was on this account alone that I thought it worthy of the notice of the Society. For while the pronounced tendency of tumours to cause enlargement of the corresponding half of the chest is emphasized by all writers on the subject, the occurrence of contraction of the side is only alluded to in a very general way. This fact alone would suggest, what indeed is beyond all doubt, that

retraction of the chest wall is a very exceptional phenomenon in such cases.

In the present instance the patient was thought to be suffering from chronic pulmonary tuberculosis with extensive thickening and adhesion of the pleura, in spite of the fact that repeated examination of the sputum failed to detect the presence of tubercle bacilli.

In discussing the diagnosis of the case, malignant disease appeared to be almost excluded by a consideration of the whole array of physical signs and symptoms. Foremost among these was the unilateral contraction of the upper part of the chest wall; but certain other facts, more especially the preponderance of dulness over the upper lobe, the absence of decisive signs of mediastinal pressure, the cough, profuse expectoration, and irregular remittent pyrexia pointed in no uncertain manner to progressive disease of the lung.

In reviewing the case it may be said that insufficient importance was attributed to two points; the extreme weakness of the breath sounds over the whole left side, and the continued absence of tubercle bacilli from the sputum, although perhaps it would not be impossible to cite exceptional cases of chronic phthisis where a like condition existed.

The diagnostic importance of the tubercle bacillus is no longer disputed, though most observers justly attach comparatively little significance to the fact that the microbe cannot be discovered in the sputum.

It may, however, be doubted whether excessive caution has not sometimes led us to underestimate the value of such negative evidence, as in the case which is the subject of the present communication.

XXXII.—*Cases illustrating the Modes in which a Strangulated Loop of Bowel reacts to the Constricting Medium.* By W. Arbuthnot Lane, M.S. *Read March* 11, 1892.

G. W., æt. 30, was admitted into Guy's Hospital on November 29, 1891.

He had suffered from a small inguinal hernia for eighteen months. It varied somewhat in size, but gave him no trouble except on one occasion. On November 27 the tumour suddenly increased in size while at work, and became very painful. He soon became sick and much collapsed.

On admission the patient appeared to be more collapsed than one would have expected from the duration of the strangulation. The hernia consisted apparently largely of fluid, and the body of the testis was in the sac.

The usual incision was made, and a large quantity of fluid escaped from the sac. The hernia proved to be congenital, and its contents were a piece of adherent omentum and a loop of bowel about 8 inches in length. The bowel appeared healthy, and did not suggest in the slightest that it would not perform its functions normally when it had been replaced in the abdominal cavity.

On examining the seat of constriction at the internal ring it was found to be very tense, so that the point of the director could only be introduced with difficulty. The canal was therefore thoroughly exposed, and the constriction divided from without inwards.

It was then seen that at least three quarters of the diameter of the proximal gut was extensively destroyed by ulceration, nothing remaining but peritoneum for a breadth of about an eighth of an inch. This was, however, intact, and neither the fluid in the sac nor the constricted zone of gut gave any fæcal odour. The distal portion of gut had been sheltered from pressure by the prolapsed peritoneum and by the proximal bowel, and showed no local change.

The constriction was produced by a membranous diaphragm of great density about an inch in diameter, and perforated by an aperture smaller than the calibre of a lead pencil. The margin of the aperture was so sharp that when it was stretched

it felt as if it would almost cut the finger pressed on it. As the injury was quite local, and limited only to one portion of the bowel, the damaged surface was turned inwards all around, the lumen of the bowel being limited to more than half its original diameter. It was retained by Lembert's sutures, and an omental graft was applied.

On the 17th December, nineteen days after the operation, the patient developed much pain and tenderness in a lump which could be felt in the right side of the abdomen. There was also some temperature on that day and the day preceding. This mass was regarded as being probably only the damaged bowel, which had acquired adhesions to adjacent parts; but to eliminate the possibility of the presence of an abscess in connection with it the peritoneal cavity was opened, and the mass was explored. Nothing beyond adhesions were found, and the mass was left attached to the parietal peritoneum. Later on he developed epididymitis for no obvious reason.

A. R., æt. 41, was admitted into Guy's Hospital on November 22, 1891.

He was much collapsed, and complained of pain in the left iliac fossa. He stated that he had had a left inguinal hernia for many years, and that he had worn a truss.

Eight days before his admission the hernia had suddenly become very much larger than it had ever been before, and it caused him much pain and sickness. He was treated by a doctor, who reduced the hernia, using great force in doing so. None of his symptoms were relieved by the operation, his pain becoming worse. He had taken no food since the hernia descended.

There was no evidence of any hernia in the inguinal canal, but in the neighbourhood of the internal ring an ill-defined resisting mass existed. It was obvious from his symptoms that a portion of intestine was still strangulated in spite of the apparent reduction of the hernial contents.

He was therefore put under an anæsthetic, and a long incision was made. A large hernial sac was exposed, and was found to contain much fluid, which, though clear, or nearly so, was very offensive. It then became apparent that, as had been suspected, the portion of the sac containing the strangulated bowel had been reduced *en masse* beneath the peritoneum. Before dividing the constriction the sac and bowel were thoroughly cleansed with perchloride lotion. The constriction was divided from without inwards, to prevent

any further damage to the bowel at the point of constriction, and the abdominal cavity was opened at the same time.

The bowel, which was still contained in the sac, was but slightly congested, and its condition did not lead one to think that there was any chance of its not performing its function if returned into the abdomen. It was very slightly thicker than usual, but it was by no means leathery, inelastic, or markedly discoloured. The bowel in the abdomen presented two definite lines running transversely around it, showing that this portion had been reduced by the vigorous attempts at reduction which had been made. The constriction was remarkably dense and diaphragmatic in shape, and presented an extremely sharp margin. Some fluid escaped on opening the peritoneal cavity, and it smelt fæcal, yet not so much as that which had been present in the sac. The smell of the gut where it had been constricted was, however, very fæcal.

Nothing remained of the intestine along the lines of constriction but a very thin layer of peritoneum, which presented no obvious perforation, and which measured about an eighth of an inch in breadth. The character of the fluid which escaped from the abdominal cavity, together with the somewhat sticky condition of the peritoneal coat of the intestines in the vicinity of the constriction, rendered me very anxious. This was, however, carefully sponged with perchloride lotion and dried, it seeming wiser to do this than to irrigate and so distribute this material generally through the peritoneal cavity. The portion of bowel including the ulcerated zones was excised, and continuity established by means of Senn's plates. From the scarred and thickened appearance of the omentum in the vicinity it appeared that the hernia had been a reducible epiplocele.

While the operation was being performed it became necessary to inject a quantity of salt solution into the circulation, as death appeared imminent. This was followed by a very marked improvement in the patient's condition. He, however, died on the following day with symptoms of peritonitis.

At the post-mortem examination the result of the resection appeared to be perfect, and no leakage took place under a considerable hydraulic pressure. The man had died of suppurative peritonitis, which had obviously extended from the seat of strangulation. Whether one would have done more good by irrigating the whole peritoneum than by the method adopted is very doubtful.

What I want to call attention to in these cases is the fact that though the bowel was constricted for a considerable period of time in either case by a very dense, extremely sharp margined constriction, yet the circulation of the loop was practically unimpaired, and the condition of the coats of the bowel was almost normal. How frequently do we see strangulated hernias of but a few hours' duration, in which the loop is livid, and its walls very much thickened, leathery, and inelastic! One knows how often this state of the bowel results in death because it neither allows of or assists in the passage of the intestinal contents through it.

It has been shown that if a piece of gauze or similar material be tied tightly around a loop of intestine, we have gangrene taking place in the centre of the convexity of the loop and spreading upwards and downwards from that point. The explanation which I would suggest of the different conditions of bowel which present themselves in strangulated hernias is that where the constriction is broad, and spread over a comparatively large area of bowel, it produces no local change in the bowel as a result of its constriction, while the back flow of blood from the loop continues to be obstructed till gangrene results, should the patient live long enough.

If, however, the constricting medium is very sharp, and affects but a very limited portion of the length of the bowel, the back flow of blood, at first much obstructed, is quickly relieved from pressure by the destructive changes which the mucous and muscular coats of the intestine rapidly undergo, the amount of the lumen of the constriction which was originally occupied by bowel becomes rapidly less, and this space is then occupied by the veins of the loop, whose circulation consequently is able to recover itself. Between these extremes we, of course, find every gradation and every combination of impaired circulation of the loop with local ulceration varying with the character of the constricting medium. I need hardly point out the importance of the particular condition of the strangulated loop from an operative aspect, as I think it is sufficiently obvious from the remarks already made.

XXXIII.—*Cases of Cardiac Asthenia following Influenza.* By J. Burney Yeo, M.D., F.R.C.P. (*Read March* 25, 1892.)

Of the various disturbances of health observed to follow attacks of epidemic influenza perhaps none have been more commonly met with than more or less notable conditions of cardiac asthenia, and many instances of great cardiac feebleness have been observed to follow even some of the slighter attacks. A patient, from two to six weeks after a mild attack of influenza, would begin to complain of *palpitations*, from which he had not suffered before, together with slight dyspnœa on exertion. On inquiry it would generally be found that he had had a mild attack of influenza, for which he had kept the house for three or four days, and that he had then at once returned to his ordinary course of life and occupation.

Not unfrequently amongst the working classes and also amongst business men slight attacks of influenza were not distinguished from ordinary colds,* and the patients did not even interrupt their work, and under these circumstances some of the graver forms of cardiac asthenia became developed; and it is to one of the most remarkable of these I now propose to call attention.

Occasionally the symptoms of cardiac debility have not appeared, or rather, I should say, have not been complained of, until some months *after* the influenza attack. A patient who had had a mild attack of influenza, or perhaps two mild attacks at short intervals, and who considered himself quite recovered, would take part in his annual military training, or would go to Scotland for some shooting, and the one would return from his training and the other from his holiday much more out of condition than when they left home.

The symptoms complained of in such cases as these were usually a pain in the centre of the chest, extending down both arms to the fingers, shortness of breath on running quickly upstairs, and troublesome attacks of palpitation, occurring especially at night.

On examining the heart evidences of dilatation were generally to be found; there were usually a feeble diffused

* This paper was written before the third visitation in the winter of 1891–2.

impulse, a murmurishness about the first sound over the ventricle, and a fluttering movement in the epigastrium. The heart beat was in some cases quickened and irregular, but, in my experience, it has been more commonly abnormally slow. I have found patients, whose normal pulse-rate was between 65 and 75, under these circumstances have a pulse as low as 40 to 50. In other cases the cardiac asthenia would come on early, and be sometimes almost the *only* indication that the patient had been affected by the influenza poison. I have seen this with a wife nursing a husband, or a mother a daughter. There has been a sudden attack of faintness, alarm has been felt, and a consultation has been asked for. To the question "Have you had influenza?" the answer has been negative or uncertain, and there has been little other evidence obtainable than the presence of influenza in the family, and the well-marked signs of cardiac asthenia in the patient in question.

I have seen two cases in which the cardiac asthenia and dilatation were accompanied with a well-marked aortic regurgitant murmur when there was was no evidence whatever of pre-existing cardiac disease.

In one case, that of a gentleman thirty-six years of age, engaged in business in the City, the attack of influenza which he had in February of last year was so slight that he did not even seek medical aid. But since the attack he has been suffering more or less from palpitation, and latterly from pain in the chest, extending down the arms to the fingers, and aggravated by any excitement or hurry. It was not until the 7th of October last that he thought it necessary to seek any medical advice. I saw him on that date, and found, in addition to the evidence of cardiac dilation, a well-marked aortic regurgitant murmur.

The other case in which I found an aortic regurgitant murmur was also that of a professional gentleman in the City, and I was asked in that instance to confirm or otherwise the diagnosis of another physician, whose opinion had, not unnaturally, greatly alarmed this patient and his friends. In this case it so happened that I had examined the gentleman for life assurance only a few months before, and I was therefore fully aware that he had no cardiac disease then.

In this case also the presence of aortic regurgitation was unmistakable.

But the most remarkable case I have seen, and the one

which it is my object now to put on record, is a patient who was recently in one of my beds in King's College Hospital.

This patient, a dark, wiry, hard-looking, well-built, muscular man, with a good family history, thirty-eight years of age, was by occupation an "oil-presser;" that is to say, he worked in a hot room pressing sperm oil. He was admitted into the hospital the 2nd of last October complaining chiefly of dyspnœa. He stated that he had always enjoyed good health up to this attack, and had had no previous severe illness except smallpox sixteen years ago. The present illness began two or three months ago when he had to give up work on account of dyspnœa and palpitation, which he states came on suddenly. He had been under treatment at home, and he had been to a seaside convalescent home for a month without getting better; indeed, the last three weeks he had been getting worse, his legs had begun to swell, and his urine had become scanty and dark-coloured.

On admission he was pale and breathless, and on examining his pulse it was found to be extremely feeble, and irregular to a degree which was very remarkable. Many of the beats were scarcely perceptible. Not more than twenty to twenty-four distinctly perceptible beats could be detected in the minute; a slight indistinct fluttering might be noticed in the artery between the perceptible beats. On examining the heart it was found to be beating most irregularly, the cardiac rhythm being completely disturbed. Many of the ventricular contractions were so feeble and incomplete as to be incapable of producing any distinct pulsation in the radial artery. The heart's impulse was extremely feeble and fluttering; the apex-beat in the sixth interspace, three quarters of an inch outside nipple. The precise area of cardiac dulness was difficult to ascertain from the co-existence of other physical signs presently to be mentioned. There were no cardiac murmurs to be heard anywhere.

This patient on admission had a considerable amount of albumen in his urine, but no tube casts; the albumen completely disappeared from the urine after two days' rest in bed, and never reappeared. Both legs were anasarcous, and pitted deeply on pressure.

The liver was greatly enlarged, and the liver dulness extended to between two and three inches below the costal margins.

There were physical signs of the presence of a very large fluid effusion into the right pleural cavity, and of a smaller

effusion into the left. Now, with all these grave symptoms and striking physical changes in important organs, what was most remarkable in this case was the good state of the patient's *general* condition. He did not, as patients say, "feel ill in himself." He had no pain, no fever, no rise of temperature; his tongue was perfectly clean, his appetite fairly good, his bowels regular, his head clear. What, then, was the origin and cause of these morbid appearances?

He certainly had *no renal* disease, although on his admission he had albuminuria; but he had no tube casts in his urine, and its sp. gr. and colour were normal, and the albumen wholly and rapidly disappeared after two or three days' rest in bed. The albuminuria was, then, clearly due to temporary passive renal congestion. Soon after the disappearance of the albumen, and as soon as the cardiac tone had been a little improved by rest and treatment, the anasarca of the lower extremities disappeared, and did not return.

Beyond the mere enlargement he had no other evidence of liver disease, and this condition was, like that of the kidneys, doubtless one of passive congestion.

He had had no symptoms of *pleuritis*, no fever, no pain, no cough; we could only conclude that the fluid effused into both pleural cavities was dropsical and due to passive congestion. This pleural effusion may, however, have been contributed to by the renal congestion.

We were thus brought back to the morbid state of the heart as the sole and essential cause of all these morbid phenomena. Here were well-marked evidences of cardiac asthenia and dilatation, but not the slightest evidence of valvular lesion. The lesion, whatever its cause, was certainly a lesion of the myocardium. Now such a condition of heart, so far as my experience goes, is excessively rare in a young and otherwise strong and healthy man; and although his work was hard and called for considerable muscular effort, it was work to which he had been long accustomed, and the effect of steady regular work on the healthy heart of a man of this age is to cause hypertrophy, and not dilatation from asthenia.

The only possible way, at least so it appeared to me, of accounting for his state was by the supposition that exposure to some infectious disease, the original symptoms of which were so slight and latent as to escape observation, had caused defective nutrition of the cardiac muscle, a condition of *cardiac asthenia*; that with his heart so affected he con-

tinued his ordinary laborious work, and so induced the acute dilatation of which we had such striking evidences.

Such an infective malady has recently been repeatedly prevalent amongst the population of this city, a malady which in some persons followed so latent and quiet a course that it was scarcely noticed, and one which was most prone, as I have shown, and as, indeed, is generally admitted, to be followed by greater or less degrees of cardiac asthenia.

This patient, on careful re-examination, admitted that during the influenza visitation of last spring he was laid up for three days with *pain in his back*, but paid little attention to it, thinking it a common cold. The further progress of this case may be briefly told.

With so large an accumulation of fluid in the right pleural cavity, and with a considerable quantity also in the left, I thought it advisable to remove a portion of the fluid from both, in order to permit a fuller expansion of the lungs, and so afford, as I hoped, a certain aid to the circulation. Mr. Whitfield, our house physician, removed by aspiration on one occasion 72 and on another 54 oz. of fluid from the right pleura, and on the next day after the first aspiration 20 oz. from the left.

As soon as this fluid was removed, and for some days afterwards, we heard very coarse and loud friction-sounds over the upper part of the right lung in front, and over the left lung in the axillary region. This at first rather surprised me, for there had been no symptoms of acute pleuritis, and yet we had the clearest evidence of a considerable deposit of lymph (of inflammatory exudation) on the pleural surface, in connection with fluid effusion, which certainly appeared to have been passive and of the nature of a dropsy. It has been suggested to me that under certain circumstances the mere passive exudation of normal serous fluid may be capable of exciting exudative inflammation in a serous membrane. But I am disposed to doubt this. Was the serum exuded in this case absolutely normal serum? May not some product of the infective disease, which we assume to have existed, have modified the serum exuded, and been perhaps itself eliminated in this exudation? Or there is another consideration bearing on this circumstance: may not the renal congestion have led to the retention in the blood-serum of an undue proportion of some of its constituents, and so rendered it abnormal and irritant?

As there were signs of some re-accumulation of fluid in

both pleural cavities after the aspirations, I did not have them repeated, and for this reason. As the cardiac condition did not appear to be improved thereby, I thought it would be unwise to continue with drawing fluid from the pleura until we had decidedly improved the cardiac tone; for if each withdrawal of fluid were to be followed by a re-accumulation, we should be, as it were, bleeding the patient into his own pleuræ, and thereby weakening instead of strengthening him. I had, however, a few flying blisters applied, and afterwards iodine painted freely over the chest, and at the same time we gave the patient full doses of iron, quinine, strychnine, and digitalis, a good diet, and, of course, absolute rest in bed.*

The fluid, under this treatment, steadily but very slowly disappeared, and his respiration was soon reduced to 18. The anasarca of the lower limbs quickly and entirely disappeared. The liver enlargement also disappeared, and the cardiac tone was greatly improved. He was able to get up and walk about. The heart-beat and the pulse, however, remained very irregular and intermittent, and continued so till only a few weeks ago, when he came to the hospital from a convalescent home, expressing himself as feeling quite well, but the action of the heart was not satisfactory.

A profound injury has undoubtedly been done to the muscular force of the heart in this case, and although there never has been any evidence of valvular defect, it will, I believe, be a long time before the heart can be restored to its normal tone, if, indeed, this ever takes place. The chief points in this man's favour are his age and his otherwise sound constitution.

In considering the nature of the morbid changes which occur in the heart in these cases of "*post-grippal*" cardiac asthenia, it is well to remember that analogous conditions have been observed to follow attacks of other infective maladies, such as variola, diphtheria, typhoid fever, and scarlet fever.

At the moment I was engaged in writing this paper I received from Dr. Huchard, the well-known physician of the Hôpital Bichat of Paris, two very suggestive and interesting reprints bearing on this subject; one a study of *Degeneration of the Myocardium*, and the other on *Some Clinical Forms of Infective Influenza*.

* Quininæ, 2 gr.; Liq. Strych., ♏v; Tr. Digitalis, ♏xv; Tr. Ferri Perch., ♏xx; Aq. Chlorof., ʒj: ter die.

He makes a suggestion that the morbid state of the myocardium caused by these infective fevers is due to an affection of the coronary arteries and their branches of the nature of a *sclerosing arteritis*—an *endarteritis* which leads to thickening of the inner tunic of the small arteries, and so to the accumulation in them of white blood-corpuscles and fibrinous plugs, thus narrowing considerably their calibre or obliterating them altogether; and that these multiple thromboses may cause hæmorrhagic infarctions, or at any rate an anæmic state of the muscular tissue, a condition favorable to fatty degeneration. Degenerative myocarditis may, then, have two causes: 1st, *inflammation;* and 2nd, *defective sanguineous irrigation from obliteration* of the small arteries.*

It has also been shown that an acute arteritis started by an infective disease may pursue a slow and chronic course, and become later on a cause of general or partial chronic arteritis.†

An Italian observer, Rattone, has seen certain germs, like Eberth's bacillus, lodged in the vascular endothelium or in the vasa vasorum.

If these morbid conditions observed after influenza are associated, as seems quite possible, with lesion of the coronary artery and its branches, it may account for the pseudo-anginal nature of the symptoms some of our patients have complained of, and for some of the cases of somewhat sudden death that have been reported, as well as account for the exceedingly slow progress others make towards recovery.

Some clinical forms of infective influenza have been very fully described by Huchard, and amongst these what he terms a cardiac form (*grippe cardiaque*).‡ This form, during the acute period, is accompanied by great tendency to fainting, and even to fatal syncope. More commonly, however, there are simply evidences of great cardiac asthenia, *slowness* of pulse, and attacks of irregular and intermittent action of the heart (arhythmic). He has noted also "grave symptoms of cardiac collapse, and sometimes even of painful attacks resembling angina pectoris."

One of those very grave cases of cardiac collapse to which

* Huchard, *Les causes de l'artério-sclerose et des cardiopathies artérielles*, Paris, 1891.

† Landouzy and Siredey, *Complications angio-cardiaques de la fièvre typhoïde.*

‡ "Sur quelques formes cliniques de la grippe infectieuse," *Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris*, Séance du 24 Janvier, 1890.

he was called in in consultation he believes was saved by repeated injections of ether—five injections one after the other, following injections of caffeine.

A condition of pulse was noticed by him in some of these cases which I have also observed—what may be called an *unstable pulse*. When the patient moves from the *horizontal* to the *vertical* position the pulse-rate will immediately rise from 80 to 120 or 130; this is a sign of cardiac debility and of diminished arterial tension.

In considering the cause of this condition of cardiac asthenia, while admitting that it may be due to a myocarditis dependent on the infective malady, we are more disposed to believe, as Huchard does, that it depends on a lesion of innervation, either a *paresis* of the *vagus*, or a disturbance of the functions of the *medulla oblongata*. In the latter case the patients may, as we have said, succumb rapidly and suddenly to a kind of paralysis of the heart.

When the *vagus* is involved two different conditions may be observed: sometimes it appears just as if the vagus had been divided, and the pulse is "rapid, small, and unequal;" at other times there appears to be rather a state of excitement of the vagus, and the pulse is remarkably slow, as in some of the cases to which I have alluded. There is, further, the condition of *instability* of the pulse to which allusion has just been made, and which is no doubt due to lowering of the arterial tension, one of the most important clinical characters of influenza.

I may now, perhaps, be permitted to offer a few remarks as to the treatment and management of those cases of cardiac asthenia occurring in connection with influenza.

In the first place, I would say that I have seen fewer serious sequelæ in patients who have been given and *who have been able to take* an adequate quantity of quinine, in a suitable form, during the acute attack, and who continued its use well into the period of convalescence.

The next point that I would insist upon is that the patient who shows any sign of cardiac asthenia should have *adequate* rest, but I think we hardly realise what is *adequate* rest when it is a question of an enfeebled cardiac muscle.

In convalescence we advise change of air, and excellent advice it is; but with that prescription we ought to prescribe an *easy chair*, a *couch*, and a *hammock*. Unfortunately we often allow such patients to *amuse* themselves by taking various kinds of *exercise*, when we ought to forbid them even

to walk more than a few hundred yards a day. Instead of fresh air and *exercise* in these cases, we should order fresh air and *rest*.

The thing is so common and familiar that perhaps we hardly reflect sufficiently on the fact that, compared with other muscles in the body, the cardiac muscle never *rests*, or rests only in a relative manner. Therefore, as rest is the best of all means for the restoration of an injured organ, we should so manage our patient that his heart should obtain the greatest amount of relative rest possible; and the greater the cardiac asthenia, the *longer* must the *period* of rest be.

As to medicines: I prefer strychnine to all others, combined with some quinine and the milder forms of iron. (Ten grains of citrate of iron and quinine and 3 to 5 minims of Liquor Strychninæ thrice daily is, I think, as good a prescription as you can write for the majority of cases.) I have seen arsenic act well in those who could not tolerate quinine. In such grave cases as the one I have related full doses of digitalis were needed to steady the heart and regulate its rhythm, and the anæmic and feeble condition demanded also urgently large doses of iron, to which were added full doses of quinine and strychnine.

In the grave syncopal cases, of which I have happily had no personal experience, injections of ether and caffeine are extolled by Huchard.

He formulates the three following indications for treatment in these cases generally:

1st. *Stimulation of the nervous system* by injections of ether, injections of strychnine, and the administration of arseniate of strychnine;

2nd. *Stimulation of the blood-vessels* by injections of ergotine; and

3rd. *Stimulation of the heart* by injections of caffeine.

Our remedies, he urges, should act especially on the nervous system in these cases of "*post-grippal*" asthenia; and they should be the preparations of strychnine, caffeine, phosphide of zinc, and other phosphates. He has used hypodermic injections of strychnine in severe cases. Caffeine, he maintains, acts on the heart through the nervous system; he gives 4 gr. with 4 gr. of benzoate of soda four times a day, or by *hypodermic* injection. He uses for this purpose a solution made by dissolving 60 gr. of caffeine and 45 of sodium salicylate in 90 minims of water; 30 minims should be injected six or eight times a day.

I am aware that this paper contains but a very imperfect notice of one of the many clinical features of the mysterious and remarkable epidemic which seems to be still lingering in our midst. I hope, however, it may not be useless as a record of these phenomena, and may be deemed worthy of a place in the *Transactions* of this Society.

XXXIV.—*A case in which an affection of the Kidney presented points of resemblance to the phenomena observed in Raynaud's disease.* By Howard Marsh. *Read March* 25, 1892.

In the twentieth volume of the *Transactions* of this Society I recorded the earlier part of a case which I am now able to complete, and the facts of which I think are worthy of discussion.

The patient, an unmarried woman of 25, was originally admitted into St. Bartholomew's Hospital in June, 1886, with the symptoms of stone in the left kidney. These were—(*a*) Pain in the left lumbar region, present since she was thirteen. (*b*) Very severe paroxysmal exacerbations of this pain, occurring sometimes without obvious cause, but usually provoked by movement. During these attacks, which lasted from an hour to fifteen hours, she sat in a crouching position, or lay on her side with the limbs drawn up. After them she was cold, prostrate, and feeble. (*c*) Painful and frequent micturition—the urine during the attacks being passed six or seven times in the hour. (*d*) Pus and blood in the urine.

Believing the kidney contained a stone, I undertook an exploratory operation, using, to gain room, an incision in the mid-axillary line, instead of the usual one further back in the lumbar region. The kidney, however, could nowhere be found. As the symptoms continued, a few weeks later I opened the abdomen in the middle line, and then easily found the kidney, and I also learnt why I had missed it before. It was very small and freely moveable, and had no doubt been carried up with the peritoneum when the deeper parts of the wound were retracted. No stone could be felt: but as the kidney was atrophied and useless I determined to remove it, after ascertaining that the right was present and apparently healthy.

The patient made a good recovery, and was discharged in September, 1886. On examination the kidney was found to contain three small calculi, about three times the size of a grain of wheat.

The main point that seemed noteworthy in the case, so far, was that such severe symptoms should be connected with an

atrophied moveable kidney containing only three calculi, so small that they might, as it seemed, have been easily passed.

At this point the former account closed.

A month later, however, the patient was readmitted with pain in the right (remaining) kidney and with scanty secretion of urine, but she soon improved, and was discharged in November. In December she was again admitted with severe renal colic, and almost complete suppression of urine. In January, 1887, the right kidney was explored from the loin, but nothing was found.

After this the symptoms subsided, and the patient worked as a household servant till the end of December, 1889. During this period she was pretty well, but she occasionally suffered with severe pain, hæmaturia, and partial suppression of urine. These symptoms were generally relieved by a hot bath and a few hours' rest in bed. But on January 29, 1890, she was admitted again, on account of an attack of unusual severity. She had such severe pain that she almost fainted; pulse 130; vomiting and great headache. On February 1 she passed only 11 oz. of urine. The note of February 3 states that she had passed no urine since February 1 till 10.20 A.M. that morning, when she passed 25 oz., sp. gr. 1030, acid, trace of blood. For several days she was in much the same state, passing sometimes a fair amount of urine and complaining of less pain, at other times suffering severely and having almost complete suppression.

February 13.—Very severe pain for several hours; 40 oz. in twenty-four hours.

February 14.—Much less pain; 40 oz. of normal urine in twenty-four hours.

February 17.—Pain still very severe; 60 oz. in twenty-four hours; no albumen or blood.

March 4.—Has been in much less pain; urine in fair quantity; now has a very severe attack of pain. No urine passed between 12 P.M. on 2nd and 11 P.M. last night (twenty-three hours), then 18 oz. Temp. 102·6°.

March 5.—No urine from 11 P.M., 3rd, to 6.30 this morning; then only 8 oz.

March 11.—Pain severe; 8 oz. in forty-eight hours, loaded with blood. She then passed no urine for twenty-four hours, and then 16 oz. loaded with blood. Sp. gr. 1020. Micturition very difficult and painful.

March 17.—Much better; urine in normal amount, and passed with much less difficulty.

March 27.—After little suffering for ten days, now severe pain, vomiting, and faintness; urine scanty, loaded with blood; micturition painful and difficult.

April 21.—Has been much better; urine gradually became free from blood; passed two small fragments of calculous substance.

April 29.—Severe pain with vomiting. No urine for thirty hours.

May 29.—Has been more free from attacks; complains of much headache. Temp. 101° to 102°.

June 23.—Still pretty well; but, on being allowed to be up, she had severe pain, and had to return to bed.

July 1.—As the attacks continued I exposed the kidney by an incision through the right linea semilunaris. The kidney seemed healthy and only moderately hypertrophied; no dilatation of the ureter; no stone found on free exploration with a needle; wound healed by primary union. 8th, passed 33 oz.; 10th, 55 oz. Allowed to be up.

For the remainder of July and during August she seemed pretty well.

September 12.—Allowed to go out into the hospital square, but vomited five or six times in the evening, and had suppression for several hours; urine contained much blood, and was passed with much pain and difficulty.

For the rest of the month pain was severe, the urine contained blood, and she grew very weak.

November 14.—Complained of tenderness over cæcum; there was dulness on percussion, and the bowels were constipated. Sp. gr. of urine 1019.

November 18.—No urine passed since the night of the 16th; pain severe; pulse weak and intermittent. Urine to-day contains mucus, epithelial cells, and blood-corpuscles, but no casts. Sp. gr. 1024.

December 13.—No urine for fifty-two hours. Temp. this morning 99·6°, last night 102·6°. Hallucinations yesterday.

December 15.—Urine still in very small quantity and containing blood. Pulse 160. Complains of general abdominal pain.

December 19.—Eight oz. of urine yesterday, containing very little blood. Much abdominal pain; passing urine freely to-day. Sp. gr. 1010, acid; a trace of albumen.

February 6.—Only 2 oz. of urine in twenty-four hours. Sp. gr. 1030; contains much blood.

February 10.—Four oz. of urine. Temp. last night 102·2°, this morning 99·8°.

February 14.—The kidney was explored again to-day; the ureter was opened 2 inches below pelvis, and a long probe passed down it, but there was no obstruction. The substance of the kidney was then incised, so that the pelvis and calices could be explored with the finger, but no stone was found. The opening in the ureter was closed with two fine sutures.

February 16.—Patient much collapsed after the operation, but she has rallied. No urine passed, but some has soaked into the dressings.

She gradually sank, and died on 17th.

Post-mortem examination by Mr. Bowlby. Thoracic viscera normal. General adhesions, especially in the right iliac fossa. Here also there was much brownish fluid, evidently fæcal. Further examination showed that this came from an open and ulcerated vermiform appendix, around which was much inflammatory thickening. It was evident that a collection of inflammatory exudation had been liberated at the time of the operation through interference with coils of adherent intestine. The right ureter was a little dilated and bound down by fibrous tissue near the cæcum. The right kidney was large and pale, but otherwise healthy. It contained no calculus or gravel. Around the uterus were many old adhesions fixing it to the neighbouring parts. The rest of the viscera were healthy. (I may add that the mischief about the appendix had apparently occurred in the previous November, when symptoms referable to appendicitis had been present.)

Remarks.—These notes show that between the ages of thirteen and twenty-five the patient suffered with pain in the left loin; that when she came under notice in 1886 she had symptoms of stone in the left kidney; that the kidney was found small and moveable, and was removed; that it contained three small stones; that within two months she returned with severe pain in the right kidney, hæmaturia, and scanty secretion of urine; that she left relieved by rest, but was readmitted two months later with the same symptoms; that for the next three years she continued to suffer with paroxysmal renal colic so severe that she sometimes fainted, accompanied with hæmaturia, and frequent and painful micturition, and that during these attacks she either passed very little urine, or went for long intervals—from

fifteen to fifty hours—without passing any at all; that these periods of pain, hæmaturia, and partial or complete suppression of urine gradually became more frequent, occurring during 1890 at very short intervals; and that when she died in February, 1891, after an exploratory operation, nothing was found, post mortem, that seemed to explain her symptoms—the kidney appearing to be healthy, and there being no stone, or any evidence that the ureter had ever been materially obstructed.

Other important points were that the kidney occupied its usual position and connections, and that the specific gravity of the urine all along was 1015 to 1025; that on one occasion she passed a small stone, and on another two small bits of calculous material from the right kidney, but that after these were passed her symptoms underwent no change, except that they gradually increased so much in severity that on several occasions she was for many hours apparently in almost a dying state.

With these facts before us, how is this case to be interpreted? When the left kidney had been removed and examined, the facts that it had been freely moveable, and that it contained some small stones, seemed to offer an adequate explanation of the symptoms which had been observed, and I think the left kidney may be dismissed. But when we turn to the right kidney it appears very desirable to ascertain, if possible, to what cause the symptoms which were connected with it should be ascribed.

1. I have not found any case in which such symptoms—intense pain, copious intermittent hæmaturia extending over between two and three years, and intermittent suppression of urine, lasting many hours at a time—have been due to a moveable kidney. Besides, this kidney was not moveable.

2. Such symptoms might, no doubt, be produced by a calculus. In respect to this the facts are that the patient on two occasions passed small calculi, but after these occurrences the symptoms still continued, and yet, as the result showed, no stone was present; nor was there any dilatation of the ureter, as I think there must have been if the outflow of urine had been obstructed by a calculus. In short, the symptoms seem to have evidently not been due to any mechanical cause; they point rather to some profound vaso motor disturbance.

3. Attention was prominently drawn to the subject of vaso-motor disturbance in the fingers and toes and other peripheral

parts, in 1862, by Raynaud, who, as we all remember, described symmetrical gangrene as a neurosis in which the normal excito-motor functions of the spinal cord, by which it presides over the vaso-motor nerves, is exaggerated.

4. The value, however, of Raynaud's contribution to pathology appears not to be limited to the remarkable cases he described, but to consist in his clear recognition of the fact that profound disturbances of the vaso-motor system are liable to occur, and to produce grave and notable clinical phenomena; for it seems probable that not only the peripheries, but other districts also of the circulation may be the seat of disturbances similar to those which he recorded, and that his observations may thus have a wider application than he was aware of.

5. A remarkable fact respecting Raynaud's disease is its frequent association with intermittent hæmatinuria or hæmoglobinuria, in which the urine contains the colouring matter of the blood and a brown sediment of disintegrated red corpuscles. In regard to this, Dr. Fagge (vol. ii, p. 590) remarks, "There can be no doubt that this singular disorder (intermittent hæmatinuria), in its most characteristic idiopathic form, is closely related to the local asphyxia with symmetrical gangrene which was described by Raynaud;" and Dr. Barlow (*Clin. Soc. Trans.*, vol. xvi, p. 186) says, "I am not so foolish as to say that Raynaud's disease and intermittent hæmatinuria are the same disease, but only that they are allied diseases." I think, however, that it may be permitted to one who, like myself, is in search of information, to ask whether intermittent hæmatinuria may not, after all, be merely one of the phenomena of Raynaud's disease, just as symmetrical gangrene is?

6. Members present may remember the very important point, that Dr. Southey has already recorded a case in which, instead of hæmatinuria, true hæmaturia (that is, the passage of red blood-cells with the urine) was met with in a case of Raynaud's disease (*Clin. Soc. Trans.*, vol. xvi, p. 173). His words are—"The urine passed early this morning contained blood-cells enough to bestow a distinct blood-colour, but no casts could be discovered." The hæmaturia in Dr. Southey's case was neither so free nor so persistent as it was in the case I have read, but its occurrence shows that hæmaturia may, as a matter of fact, replace hæmatinuria in Raynaud's disease.

7. The feature of intermittency, or of paroxysmal recur

rence, so marked in the case I have read, is often conspicuous in Raynaud's disease. In a case of Dr. Southey's (*St. Bartholomew's Hospital Reports*, xvi, p. 16) the patient's fingers became the seat of almost unbearable pain, and "went black" for about an hour on successive days, and then recovered; while "during her journey to the hospital, having been normal before, the skin of both shins and calves became blue-black, as if it had been badly bruised." And in another the fingers suddenly became painful, and assumed a dark livid colour, which, however, disappeared in an hour or two. In all three of Dr. Barlow's cases the paroxysmal character of the affection was equally well marked; for example, it is stated that the attacks, in one instance, occurred mostly in the afternoon, and that many passed off in less than an hour, while the longest duration was seven hours. Indeed, Dr. Barlow remarks that the essential clinical note of Raynaud's disease, at all events, primarily, is the paroxysmal character of the circulatory disturbance.

8. Paroxysmal pain, which was very severe in my case, is often a very marked feature in Raynaud's disease. It is described as a severe aching and burning pain, or a sharp burning pain of extreme intensity, and almost unbearable, while in one case (Southey) it led to convulsions.

9. Many cases which are now on record unite in showing that Raynaud's disease is neither constantly symmetrical nor confined to distal parts, such as the fingers and toes and the rim of the ears, but that it may affect various districts of the circulation. Thus in a case noticed by Dr. Southey in a child of three, "brown patches resembling bruises came out over her whole body except her head, and she was left with scars upon her shoulders, in the lumbar regions, and upon the dorsal aspect of both her thighs." Of another patient Dr. Southey records that "her nose bled frequently for over a period of two weeks, then the tips of her fingers and toes were noticed to be red" (*St. Bartholomew's Hospital Reports*, xvi, 23); while in one of Raynaud's cases, quoted by Dr. Barlow (*Trans. Clin. Society*, xiv, 185), "after characteristic attacks involving the extremities had occurred during two or three months, the patient began to suffer from ocular disturbances, vision between the attacks being troubled and confused," and ophthalmoscopic examination showing "considerable narrowing of the arteria centralis retinæ and its branches, while partial momentary 'strangulations' could be seen at times."

10. The duration of Raynaud's disease may be very prolonged. In one of Southey's cases it extended over two and in another upwards of four years. The kidney affection in my case lasted upwards of four years.

11. In several cases of Raynaud's disease crystals of oxalate of lime or of uric acid were found in the urine during attacks of hæmatinuria.

I am not prepared to maintain that the case I have read owned the same pathology as the cases that have been grouped under the head of Raynaud's disease. On this point I should be glad to hear what others think, but certainly a very strong resemblance presents itself.

Leaving its pathology, I must allude—but I will do so very briefly—to the case in its clinical aspect. From this point of view it may serve as a useful warning. The symptoms observed were those which are currently regarded as indicative of calculus producing obstruction. The case, however, belongs to, and is perhaps the most notable hitherto recorded of a group of cases in which severe paroxysmal pain and various other symptoms referable to the kidney have been present, but of which no adequate explanation could be given.

XXXV.—*A case of Floating Kidney, treated by a new mode of Nephrorrhaphy.* By J. W. Washbourn, M.D., and W. Arbuthnot Lane, M.S. *Read April* 8, 1892.

M. A. B., a married woman, æt. 44, came under the care of Dr. Washbourn in Guy's Hospital on February 12, 1891, complaining of a very painful lump in her abdomen. She had had eight children, and her labours had all been normal and easy. About six months before admission she was seized suddenly with pain in the back, which recurred every morning as soon as she got out of bed. She gradually lost flesh, and her appetite failed. In the end of March she had a violent paroxysm of pain which she referred to the right side of the abdomen, where a lump could be felt. On admission an ovate tumour was found in this situation. It was very freely moveable indeed, and only caused pain when forced upwards or downwards. Dr. Washbourn considered that it was a moveable kidney, and Mr. Lane, being asked to see the case, concurred in this diagnosis.

He operated on the patient on February 28, and having been somewhat disappointed with the results of the usual methods of attaching moveable kidneys, made use of what seemed to him to be a novel and very effectual means of preventing subsequent mobility of the organ.

He freely exposed the kidney, which was very moveable, by a lumbar incision, and after removing carefully all the fat, fascia, and areolar tissue which intervened between the kidney and the muscular wall of the abdomen, he made a considerable number of incisions through the capsule covering the posterior surface of the kidney radiating from its centre, so that this portion of the capsule was subdivided into about ten triangles, the bases of which corresponded to the margin of the kidney. These were stripped off the organ, and were left connected to it by their bases only. Each of these triangular processes of capsule was twisted so as to prevent it tearing, and to each a silk ligature was attached. This formed a secure attachment, and much strain could be exerted on each ligature without the section of capsule to which it was attached showing any sign of yielding.

At regular intervals, corresponding to the attachments of the segments of the capsule, small incisions were made through

the transversalis muscles and superjacent structures, and through each a ligature with the attached portion of capsule was drawn. The adjoining ligatures were then tied firmly together. By these means the posterior surface of the kidney bared of its capsule was retained immoveably in firm, accurate, and immediate contact with the transversalis aponeurosis and muscle, and the cut margins of the more superficial muscles by the several anchoring processes of the capsule.

Nothing could have been more satisfactory than the progress made by the patient after the operation; the kidney, the mobility of which was such as to render a successful result unlikely, remained fixed firmly and immoveably in the position in which it was originally attached, while the woman was relieved from the distressing symptoms which she said had rendered her life almost unendurable.

She rapidly gained weight and strength, and led a very active life for a year without experiencing any return of her pain. She was given instructions to avoid lifting any heavy weight, and these she followed out pretty carefully. One day, however, forgetting her old trouble, she thoughtlessly moved a very heavy piece of furniture, and strained herself in doing so, hurting herself in the region of the cicatrix of the operation. She then felt some of her former pain, and fearing its return in its orignal severity she begged to be operated on again without delay. On examining her abdomen after the injury the lower end of the kidney could be felt at the level of the crest of the ilium on deep palpation, and it was rendered more distinct by forcibly depressing the cicatrix in the loin. The kidney was not abnormally moveable, however. Fearing that it was beginning to become loose again, Mr. Lane cut down on it, and found that it was as intimately and inseparably connected to the abdominal wall as it was when left fixed at the original operation. It was certainly less moveable than normal, for the reason that it was embedded in fibrous tissue, and the surface of the organ could not therefore be seen. No cause was found to account for her slight discomfort, and since this exploratory operation the patient has had no return of it. It seems probable that the kidney was squeezed or bruised when she lifted the box, and that led her to suppose that the pain was returning. It is pretty obvious that, whatever operation is performed, the patient should not be allowed to lift or move any heavy weight, otherwise some of the original pain and discomfort may be experienced.

XXXVI.—*A case of Traumatic Cyst of the Pancreas successfully treated by stitching the cyst-wall to abdominal parietes and drainage, with an analysis of the pancreatic fluid subsequently collected.* By H. Littlewood, F.R.C.S. *Read April* 8, 1892.

Henry M., æt. 38, a groom, admitted under the care of Mr. Hartley to the Leeds Infirmary in July 23, with this history. Whilst training a horse to jump, he was thrown, the horse stamping on him with his hind feet, striking him over the left side of his abdomen at the upper part. He was picked up, stunned for the moment, and brought to the Infirmary in the ambulance.

Note on admission.—There is a fracture of the sixth rib of the left side. A good deal of bruising of the back in the lumbar region. Tenderness over the front of abdomen on the left side in the hypochondriac and lumbar regions. Muscles over this region rigid. No abnormal swelling could be felt in abdomen. No vomiting. Passed urine. No hæmaturia.

July 24.—Had a bad night. A great deal of pain in left side. No distension. Muscles very rigid. Small dose of opium ordered. Milk diet.

July 25.—Bowels slightly moved this morning. Patient looks anxious and distressed. Great pain in left hypochondrium this evening. Abdomen seems slightly distended, especially about epigastrium. No vomiting. Temperature gradually rising. Morphia, ¼ gr., hypodermically given.

July 26.—Temp. 100°. Evident abdominal distension. Tenderness over epigastrium. Pulse rapid and wiry. Abdomen quite rigid on the left side. Nothing can be made out by palpation. No abnormal dulness. Tenderness over back diminishing. No vomiting. Bowels constipated. Purgatives ordered, and morphia to allay pain.

July 27.—Bowels not having been opened, enema given, followed by copious evacuations. Nothing abnormal noted in fæces.

July 28.—A little better this morning. The abdominal distension seems limited to the upper part of the abdomen. Still tender in this region. Enema given, followed by two evacuations.

July 30.—Patient has improved the last two days. The percussion note over the epigastrium is not so resonant. There is a decided fulness, and the aortic pulsation is very marked in this region.

August 2.—Bowels moved twice to-day. General condition remains the same.

August 4.—Vomited to-day after having had milk and soda. Pain in the epigastrium more severe. The distension in the epigastrium and left hypochondrium is rather more marked, and percussion over the centre of the distended part is slightly dull.

August 5.—The distension this morning is well defined. It forms an oval-shaped swelling lying across the epigastric and left hypochondriac regions. There is a variable dulness about the centre, but not absolute. An exploring needle introduced into centre of prominence (*i. e.* a point rather higher than halfway between the umbilicus and ensiform cartilage) ; a syringe-full of dark blood removed.

Mr. Hartley going away the next day, the case was handed over to my care.

August 10.—Patient has remained much in the same condition for the last few days as he was before the exploratory puncture. This morning, however, the swelling is found to be much more prominent, quite dull in percussion, and tense on palpation.

August 12, 11.30 A.M.—Patient is much worse this morning; he is lying on his right side with his left knee drawn up; says he cannot bear to turn either on his left side or back. Complains of great pain and tenderness in abdomen. There is a swelling which can be seen and felt occupying the upper part of umbilical and lower part of epigastric regions, chiefly on the left of the middle line; the most prominent point about midway between the umbilicus and seventh left costal cartilage. It extends about 1½ inches beyond the middle line and into the inner parts of the left hypochondriac and lumbar regions. It apparently fluctuates. Dull on percussion, the dulness extending round to the back on the left side; the upper limit of dulness varies with the movements of the diaphragm.

Patient complains of attacks of pain coming on every few minutes, commencing below the left costal margin, which causes him to gasp for breath. Respirations 36; pulse 108. Swelling aspirated over the most prominent point, and 10 oz. of fluid removed, of a dark sage-green colour, viscid, sp. gr.

1015, alkaline; odour peculiar, somewhat like mushrooms, suggestive of a digestive process.

Fig. 14.

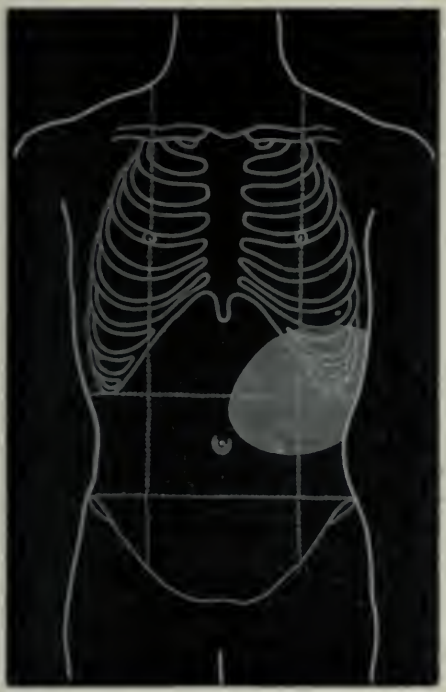


Diagram showing situation of the tumour.

3 P.M.—After a consultation with Mr. Jessop, Mr. Atkinson, and Mr. W. H. Brown, it was decided that the abdomen should be opened without delay. The probable diagnosis of a traumatic pancreatic cyst was made. Patient under ether, Mr. Moynihan, the resident surgical officer, assisting, I made a median incision into the abdomen above the umbilicus; the incision, with the subsequent extension downwards, measured about 3 inches in length. On opening the peritoneum the omentum was seen to be tightly stretched across the front of the cyst, which bulged prominently forwards. The stomach was found to be displaced upwards, and transverse colon downwards. A vertical opening was torn through the omental covering of the cyst about 2 inches in length. A small

amount of fluid had extravasated around the puncture. The needle of a small exploring syringe was then thrust through the cyst-wall, and a small quantity of fluid withdrawn. An opening was then made at this site with a scalpel, about 1 inch long, the edges of the opening seized by forceps (the cyst-wall was about an eighth of an inch in thickness), the fluid allowed to escape. When about a pint of fluid had escaped sponges were packed inside the abdomen around the opening; by this means the peritoneal cavity was protected from the fluid. About 40 oz. of fluid were collected at the operation, making, with the 10 oz. removed in the morning, a total of 50 oz. The fluid was of the same nature as that removed in the morning. It was subsequently demonstrated that the fluid contained ferments capable of digesting albumen and of converting starch into sugar. (An analysis of this fluid and the fluid subsequently collected is given at the end of the paper.) On introducing the finger into the sac the posterior part of the cyst-wall appeared to correspond to the back of the abdomen; the anterior part of the cyst-wall was probably formed by a thickening of the peritoneal and subperitoneal tissues covering the pancreas (the ascending layer of the transverse mesocolon).

The aorta could be easily felt through the posterior wall. The general lining of the cyst-wall was smooth. The finger could be passed on the left side below the last rib, and felt in this position from the outside. At the bottom of the cyst a rough, elongated, corrugated mass could be felt, which on inspection through a Fergusson's speculum was thought to be the pancreas. The edges of the opening of the cyst were then stitched with fine silk to the peritoneum and deeper layers of the abdominal wall at the upper part of the abdominal incision; the lower part of the incision was closed by five or six silk sutures. After this the cavity of the cyst was thoroughly washed out with a large quantity of hot boracic lotion by means of a long tube and funnel, and then carefully dried by long strips of cyanide gauze, and finally packed with the same material, the lower part of the wound painted over with collodion, and the whole dressed with a large quantity of wool. (The operation was performed just twenty days after the accident.)

August 13.—Patient has recovered well from the operation, and looks decidedly better. The dressing has been soaked through, the fluid being of the same colour as that removed at the operation. No abdominal pain. A little

sickness. Having only a small quantity of brandy and water by the mouth.

August 14.—Still improving. Dressing soaked through twice in the twenty-four hours. Fluid a little lighter colour. No distension, but a little pain in abdomen. No sickness. Having a small quantity of food by the mouth.

August 17.—Has improved considerably since the last. Note: has taken liquid food by the mouth without sickness or pain. Fluid soaking through dressing as before. Slight excoriation of skin around wound.

August 19.—Still improving; can now take food well. To-day a Bantock's tube, bent at right angles, was introduced into the cavity; this was packed all round with gauze, and had a piece of india-rubber tubing and bottle attached to its free end to collect the fluid.

August 20.—5½ oz. of fluid collected in the bottle; this was of a yellowish-white colour, and slightly turbid with a deposit. On examination the fluid was found to possess the same digestive properties as the fluid removed at the operation, but was much more active. (For analysis *see* end of paper.)

August 21.—Fluid again collected, same as before.

September 2.—For the last four days has had a painful swelling of upper jaw, due to carious tooth; this has disappeared. It is difficult to collect fluid; it is apparently diminishing in quantity, only 1½ oz. of fluid having been collected during the last twenty-four hours; it is now almost clear.

September 6.—Patient seems almost well, gets up, and is able to walk about. He is now on ordinary diet. Wound healed except a sinus, which is about 2½ inches long.

September 8.—A celluloid tube fixed to a celluloid plate, and attached to a bottle to collect the fluid, has been inserted into the sinus; 4 oz. of fluid collected during the last twenty-four hours.

September 9.—2 oz. of fluid collected.

September 12.—Wound is closing up. The fluid still discharges, but not so fast; there is great difficulty in collecting it. Patient is feeling well, with a good appetite; has gained 2 lbs. in weight during the last week.

September 20.—1 oz. of fluid. Patient says he has always noticed that the fluid collects more quickly in the bottle after he has swallowed a good quantity of liquid; *e. g.* at 4 A.M. he has a pint of warm milk with some brandy; the fluid then collects rapidly. No more definite observation than this could

be made as to the times of day the greatest amount of fluid could be collected.

September 22.—Yesterday complained of pain in abdomen; this is present to-day. Temp. 101°. No apparent cause.

September 23.—Pain still continues. Temp. 102°. Tube removed, as it appeared to be irritating.

September 24.—Pain continuing. Hot fomentations applied to abdomen.

September 26.—Feels better. Temp. 99°. Bowels well opened.

September 27.—Feels quite well this morning.

September 28.—Fomentation stopped.

September 30.—Temp. normal. More fluid in dressings. Small drainage-tube inserted.

October 3.—Discharge less. Sinus healing up. Smaller tube inserted.

October 7.—Tube shortened. Patient feels almost well.

A few days after this, patient was sent to our Convalescent Home. The tube was removed, and the sinus had practically healed up when I saw him about three weeks later. Since then he has been doing work, but has been advised not to ride again this season.

The diet for the week after the operation consisted chiefly of milk and Benger's food; after that rice pudding and fish, followed in a few days with chicken and chops. On examining the fæces and urine on several occasions nothing abnormal was noted.

I think there can be little doubt that the case recorded was one of so-called traumatic cyst of the pancreas. The injury produced by the horse's hind feet had lacerated some part of the gland, tearing through either a part of the main duct or some of the smaller ones; at the same time a good deal of bleeding had occurred, as shown by the blood removed by the exploring syringe a fortnight after the injury. After this the swelling increased very rapidly, the fluid at the aspiration eight days later having considerably altered in appearance; it was then of a dark greenish colour, and had no naked-eye appearances of containing blood. The increase in size was probably due to the large increase in the amount of pancreatic fluid poured out, and the altered colour to the digestive properties of the fluid acting on the blood. In this case there must have been considerable tearing of the pancreas; probably the main duct was torn, as the cyst formed very rapidly, and

within three weeks (the time elapsing between the injury and the operation) it contained more than 50 oz. of fluid. The epigastric pain was a marked feature.

The case read before the Royal Medical and Chirurgical Society by Mr. Jacobson brought the subject of pancreatic cysts again before the profession, reminding us of the important paper by Senn in 1885. After removing the fluid in the morning, and again referring to these papers, one had little doubt as to the diagnosis of this case.

So far as I can find out, this is the sixth case recorded of traumatic cyst of the pancreas treated by operation. I append table of cases. All the cases occurred in males, and all recovered. Five were operated on and drained through an anterior abdominal wound; one (Cathcart's case) was drained posteriorly, the abdomen having been first opened in front.

Had I realised before the operation that the cyst could have been so easily opened from behind, as was demonstrated at the time by the facility with which the finger inside the cyst could be felt behind on the left side just below the last rib, I think I should have been inclined to open it in that situation. The operation would have been performed in a shorter time, and the patient would not have had to run the risk of a peritoneal operation. I think it would be a good plan, if a pancreatic cyst is suspected, to explore from behind; and if any of the fluid is obtained, to make an opening in that position.

I suppose it would scarcely be considered good surgery to puncture an intra-abdominal cyst, unless one is ready at once to proceed with the operation of opening the abdomen. In this case the patient was none the worse for it, although a little of the fluid had extravasated around the puncture. I am not prepared to defend such a proceeding.

Character of fluid removed at time of operation.—Dark sage-green colour (probably due to altered blood-pigment), viscid. Sp. gr. 1015 (markedly alkaline). Odour peculiar, somewhat like mushrooms, suggestive of a digestive process. Under the microscope some amorphous granular *débris*. No crystals. A small quantity of fibrin kept in a test-tube with the fluid at a temperature of 38° C. disappeared in about forty-eight hours, and a most offensive odour was given off. On filtering and adding absolute alcohol a white precipitate slowly formed (peptone). Fluid added to a solution of starch and kept at 38° C., starch was converted into sugar, as was shown by the copper reduction test.

Analysis of fluid collected about ten days after the operation.

Analysis and report kindly made for me by Mr. Arthur Clarkson, M.B., Demonstrator in the Yorkshire College.

Substances found in the fluid:—Serum-albumen, salts, trypsin, amylopsin, steapsin, milk-curdling ferment.

Fluid was yellowish-white colour, slightly turbid; some deposit. Specific gravity 1014. Reaction alkaline.

The solution gave the general reactions of proteids, namely, the xantho-proteid reaction, Millon's reaction, and biuret reaction.

On the addition of acetic acid and heating, a precipitate of coagulable proteid occurred. The filtrate did not give the proteid reactions. The original solution gave no precipitate on being shaken with ether, and none on saturation with magnesium sulphate. There was no precipitate on adding the original solution to water. The proteid present was therefore neither egg-albumen nor globulin, but serum-albumen. The amount present was 2 per cent.

The fluid was now tested to see if it contained albumose. HNO_3 was added, when a considerable precipitate was thrown down, which on heating did not disappear. It was filtered while boiling, and the filtrate allowed to cool. No precipitate occurred in the filtrate while cooling, therefore no albumose was present.

The fluid was tested with the usual reagents for carbohydrates, but none were found present. It did not contain bile or blood. It contained salts, sulphates, chlorides, &c.

Tests for ferments.

1. *Milk-curdling ferment.*—On adding some of the fluid to milk and keeping it in a water-bath at about 40° C. no clotting was observed, but the milk so treated gave the "meta-casein reaction;" that is to say, the milk, after being subjected for a few minutes to the action of the fluid, on heating gave a slight heat coagulum, which was more readily obtainable in half an hour to an hour's time; after that time it formed more slowly, and finally did not form at all. The milk was tested throughout the experiment. and was always alkaline, so that the curdling could not be due to the presence of fatty acids.

The onset of the meta-casein reaction was found to be delayed by the addition of sodium chloride.

The following experiment was performed:—10 c.c. of milk, 10 c.c. of water, and 3 c.c. of pancreatic fluid were placed in a water-bath at a temperature of 37° C. at 11 o'clock.

11.5.—Part of fluid examined; reaction alkaline. On boiling, no coagulum formed.

11.10.—Part of fluid examined; reaction alkaline. On boiling, a slight curd.

11.30.—Part of fluid examined; alkaline. Distinct curdling on heating.

11.40.—Part of fluid examined; alkaline. Less distinct curdling on heating.

11.50.—No curdling on heating.

2. *Sugar-forming ferment* (amylopsin).—Boiled starch solution, to which the fluid had been added, and which was placed in a water-bath at a temperature of 40° C., showed Fehling's reaction, reducing the copper sulphate in a few minutes.

3. *Peptonising ferment* (trypsin).—This was present in small quantity. Fibrin was placed in the fluid, and was kept in a water-bath at 40° C. At the end of 30 minutes a very slight corrosion of the fibrin was observed; this was more evident, though still very slight, at the end of three quarters of an hour. If its own quantity of a 2 per cent. solution of Na_2CO_3 was previously added to the fluid the effect was much more pronounced, corrosion being evident in a quarter of an hour, and the fibrin completely disappeared in an hour's time. The resulting solution was then tested with nitric acid, when it gave a precipitate which disappeared on heating and reappeared on cooling, showing the presence of albumose. The albumose was precipitated by neutralisation and heating, and the filtrate tested for proteids. It gave the xantho-proteid reaction, but no precipitate with acetic acid and ferrocyanide of potassium. It gave a rose colour with the biuret reaction, showing the presence of peptone.

4. *Fat-splitting ferment* (steapsin).—Oil which had been neutralised, washed, and extracted with ether was placed in a water-bath at 40° C., and some of the fluid added to it. The reaction of the mixture was alkaline. In an hour's time the reaction was again tested, when it was found to be distinctly acid (due to the presence of free fatty acids).

Cases of traumatic cyst of pancreas treated by operation.

Operator.	Age and Sex.	Nature of Traumatism.	Interval between Traumatism and Operation.	Treatment.	Result.	Reference.
1. Kulen-Kanpff	Male; 39	A number of heavy blows on abdomen above umbilicus	From March 22, to Sept. 20, 1881	Abdominal section and drainage	Recovery	*Berlin. klin. Wochen.*, Feb., 1882.
2. Senn . .	Male; 19	Fall from a waggon forwards on the left side of abdomen, a heavy keg falling on his back	5 weeks	Ditto	Ditto	*American Journal of Medical Sciences*, July, 1888.
3. Treiburg .	Male; 22	Injury of abdomen "inflicted by several miscreants"	10 weeks 4 days	Ditto	Ditto	*Karkov-Inaug. Dissertn.*, or *Annals of Surgery*, Nov., 1888.
4. Cathcart .	Male; 13	"Hind wheel of lorry (which was rapidly moving at the time) passed over upper part of abdomen"	From May 4 to July 31, 1889	Abdominal section; found cyst had ruptured; drainage from behind	Ditto	*Edin. Med. Journal*, July, 1890.
5. Jacobson .	Male; 21	Kicked in abdomen	3 years	Abdominal section and drainage	Ditto	*Lancet*, June 13, 1891; *Trans. Royal Med.-Chir. Society.*

XXXVII.—*A case of Hydatid of Lung which proved fatal by rupture into a bronchus nine hours after treatment by aspiration.* By Hector W. G. Mackenzie, M.D. *Read April* 8, 1892.

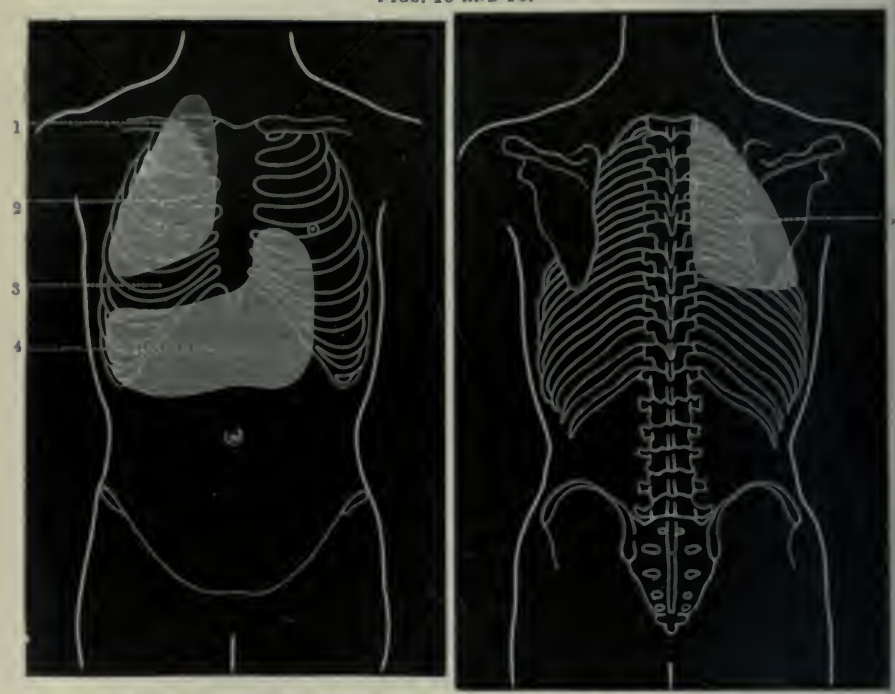
J. S., æt. 26, a tailor, came to see me on January 29, 1891, because he had been told by his doctor that he had something the matter with his right lung. On December 27, 1890, the patient, feeling in excellent health ("never better in his life" were his own words), went to a doctor to obtain a certificate of health, as he wished to join the "Hearts of Oak" Society. To his surprise he was informed by the doctor that the upper part of the right lung was not sound, and that therefore he could not be passed. The doctor told him to paint the upper part of his chest with iodine, and gave him something to inhale. The result of the treatment, as it seemed to the patient, was that within a few days he began to be troubled with a bad cough accompanied by much expectoration. The cough continued, and was often so troublesome as to prevent the patient from sleeping. He also began to sweat at night, never having done so before, and to complain of pain in the lower part of the right side of the chest on taking a deep breath. For a fortnight before coming to the hospital he had had a sense of discomfort in the epigastrium not exactly amounting to pain, and for a week his breath had been short. He found that he had lost four pounds in weight in three weeks.

He never had had an illness until two years before, when he had "pleurisy in the left side," laying him up for three weeks. He had a cough in the winter 1889–90, but was perfectly well throughout the summer of 1890 and up to the onset of the present illness.

The patient was of medium height, of slight build, and fairly well nourished. The movements of the right side of the chest were much impaired. There was impaired resonance at the right apex. Below the clavicle there was some resonance just to the right of the sternum. There was absolute dulness in the nipple line as low as the fifth rib, and in the axillary line as low as the sixth rib over the area shown in the diagram. The note was hyperresonant between the fifth and seventh ribs in the nipple line, and between the

sixth and eighth ribs in the axillary line. Posteriorly the note was much impaired over the right apex, and was quite dull below that as far down as the angle of the scapula, but again became resonant at the extreme base. On the left side the percussion note was resonant both in front and behind. The breath-sounds were very weak at the right apex, and

FIGS. 15 AND 16.



Diagrams showing the physical signs when the patient was admitted to the hospital. 1. Area of impaired resonance and weak breath-sounds. 2 and 5. Areas of absolute dulness, inaudible breath-sounds, very feeble vocal fremitus and resonance. 3. Area of hyperresonance, weak breath-sounds and friction. 4. Area of liver and cardiac dulness.

were hardly heard at all over the area of absolute dulness. They were slightly more audible over the resonant area just to the right of the sternum, and they were very weak over the hyperresonant area, at the base, where very loud friction was to be heard. The vocal fremitus and resonance were both much impaired over the dull area.

The cardiac dulness began at the fourth space above and

at the left edge of the sternum on the right, while the apex-beat was to be felt best in the fifth space half an inch external to the nipple line. There was visible pulsation in the fourth and fifth spaces.

The liver dulness began at the seventh rib in the nipple line, and there was dulness over the whole of the upper part of the abdomen nearly as low as the umbilicus, below which the note was resonant.

The pulse was 96, full, regular, and compressible.

The temperature was normal.

The urine was free from albumen.

The tongue was somewhat furred, but the digestive functions were normal.

With such physical signs as the patient presented the diagnosis was limited to a few possibilities—solid new growth, hydatid, and a circumscribed pleuritic effusion either serous or purulent which was prevented by adhesions from filling the whole pleuritic cavity. The history and the physical signs were both completely satisfied by the supposition of a hydatid tumour, and the only thing to be said against this view was its unlikelihood, simply because of the extremely rare occurrence of pulmonary hydatids in this country. It seemed very improbable that a new growth could have attained such a size without real signs of illness becoming manifest at a much earlier period than was the case. Against the localised effusion theory it might be argued with reason that as the lower part of the pleuritic cavity was evi-

Fig. 17.

Diagram showing the position of the lungs and the hydatid tumour at the post-mortem examination. 1. Hydatid tumour. 2. The liver.

dently not adherent, which was clear on account of the marked friction, if there were effusion it should not be localised. Moreover it seemed also very unlikely that such a large effusion could have come about quite insidiously.

At this time I was not aware of the great risk which is incurred by aspirating hydatid tumours of the lung, or I should not have proposed in order to clear up the diagnosis to tap the chest. This was done on the afternoon of February 4, the aspirator being used. The trocar was inserted near the angle of the scapula. A pint of clear nearly colourless fluid had been drawn off, when it ceased running, and there was a sound as of air being sucked in. The canula was accordingly removed. The patient turned very faint during the aspiration. As soon as the fluid appeared there was no doubt what the nature of the case was. The fluid gave the ordinary hydatid reactions, and echinococci were found in it. In order that the patient might keep as much as possible at rest a hypodermic injection of morphia was given about fifteen minutes after the aspiration.

He went on well until nine o'clock in the evening, when he suddenly coughed and spat up a mouthful of thin blood-stained fluid. He at once became greatly distressed with the most urgent dyspnœa, and a few minutes later he turned deadly pale, with lividity of lips and ears and profuse cold perspiration. He had constant cough, but only brought up a table-spoonful or two of fluid, and he was exceedingly restless. The dyspnœa continued and became more expiratory in character, and the patient died about twenty minutes past eleven.

I made a post-mortem examination the next day but one. On opening the chest it was seen that the right lung extended to the left of the mid-line to a considerable extent, as shown in the diagram. The liver was displaced downwards, and the lower lobe of the right lung extended quite down to the costal margin. The percussion note was resonant all over. In the situation of the area of dulness depicted in the diagrams during life there was a large cyst. This was extremely firmly adherent to the chest-wall, both in front and behind, and in consequence the lung was removed with great difficulty, and in removing the cyst the wall was ruptured posteriorly, and a large quantity of hydatid membrane emerged from the rupture. The capacity of the cyst was about 2½ pints. As far as could be made out without spoiling the specimen for museum purposes, the cyst had originated not

in the lung itself, but between the upper and the middle and lower lobes. The lower lobe was distended and œdematous, while the middle lobe was thinned out over the tumour. The upper lobe appeared to be fairly normal. The fibrous capsule of the cyst was very thick, and its inner surface was rough and irregular. The hydatid membrane had the ordinary characteristics. There were no daughter cysts. On injecting water from a syringe into the main bronchus of the right lung it was seen that a branch leading to the lower lobe communicated with the cavity formed by the fibrous wall of the cyst. This bronchus lay in close relation to the back of the cyst, and had been pressed upon by it, thus accounting for the weak breath sounds heard during life over the lower lobe of the right lung. The right bronchus was full of frothy fluid. There was recent pleurisy over the right lower lobe, with the formation of fibrin posteriorly and some serous effusion. The left lung was healthy, and there was no sign of disease in any of the other organs. A round-worm was found in the œsophagus and another in the jejunum, showing that the body was affected by more than one kind of parasite.

I have thought it worth while to bring the case before the Society, partly on account of the rarity of hydatid disease of the lung in this country, but especially on account of the important question of the treatment of the disease. A very similar case was brought forward by Dr. Bristowe last session resembling this one, inasmuch as the hydatid, was living and that death followed on aspiration; differing, however, in the facts that the hydatid was comparatively small instead of very large, and that death took place during or rather at the very commencement of aspiration instead of several hours after.

Diagnosis depends so much on what is probable, that as long as hydatid of the lung is rare it will likely prove perplexing, and therefore such cases as are met with deserve for this reason all the more careful consideration. The more one studies the various signs presented by this case the more difficult does it appear to imagine that they could have been produced by any other condition than that actually existent. The peculiarly shaped area of complete dulness and absence of breath-sounds and vocal fremitus, the hyperresonant area at the base with feeble breath-sounds and friction, the displacements of the heart and liver, were such that neither circumscribed effusion nor new growth could adequately explain. While the history was inconsistent with anything else except hydatid, with the latter it was in complete accordance.

The distressing fatal termination so soon after aspiration accentuates the danger arising from this mode of treatment. Taken in conjunction with Dr. Bristowe's case, it may perhaps give rise to an exaggerated view of this danger. In order to correct this I may be excused for again referring to the statistics given by Dr. Davies Thomas at the second Intercolonial Medical Congress, and in the *Australian Medical News*. Of 53 cases treated by aspiration or tapping, 14 proved fatal, or 27 per cent. We may compare this with the mortality of cases in which nothing was done—113 deaths out of 208, or 54 per cent. Tapping is therefore much better than doing nothing, this treatment really halving the mortality. Of 133 cases in which spontaneous rupture into the bronchus took place there were 31 deaths, or 23 per cent. The mortality from aspiration is therefore slightly more than that from spontaneous rupture, but spontaneous rupture is the only chance of cure without surgical aid, and in evidently a large proportion of cases does not take place.

Dr. Thomas's experience of treatment by excision of rib is more favorable, 6 deaths having occurred out of 38, or 16 per cent.

Such statistics must be taken for what they are worth. As Dr. Bird pertinently remarked during the discussion which followed Dr. Thomas's paper, a series of cases treated by excision by an experienced surgeon is hardly fairly to be compared with a series of aspirations done by many different operators. Dr. Bird, indeed, who seems to have had a large experience, was himself an advocate for tapping, although not for aspiration, and did not consider that there was much danger attaching to it. On the whole, however, the treatment by making a free opening into the cyst and thoroughly evacuating its contents is that which, on theoretical grounds, most commends itself; and although 16 per cent. is still a high rate of mortality, it is better than that resulting from tapping, and very much better than that of the untreated disease, and therefore I should in any future case recommend it.

Dr. Bristowe in his communication gave such a complete and satisfactory explanation of the cause of the swamping of the lungs with fluid after tapping, that anything I could say on that subject would be but a repetition of his remarks.

XXXVIII.—*A case of Abdominal Section, followed by parotitis and recovery.* By Stephen Paget, F.R.C.S. *Read April* 8, 1892.

I VENTURE to bring this case before the Society partly because of its surgical interest, and partly because it is another instance of that form of parotitis which I described some years ago, having collected more than a hundred cases of it—an acute inflammation of the parotid gland which occurs after injury or disease, or temporary derangement of the abdominal or pelvic organs, and is due to reflex nervous action, and not to pyæmia.

Mrs. B., æt. 58, was seized with abdominal obstruction on December 12. She was placed under the care of Dr. Orton, of Campden Hill, and at first the attack seemed likely to yield to treatment; but on the 14th she had fæcal vomiting and complete obstruction. Objections were raised to his advice that she should go to the hospital; but she got steadily worse, and was admitted to the West London Hospital on December 18. The abdomen was distended, but not tender; pulse 90, weak. She was somewhat collapsed, and was vomiting a brown fluid, of faint fæcal smell, which came up as if from a pump.

She had an old inguinal hernia. I therefore explored this at once, but found only the empty sac, which I tied and cut off. The next day, as she was no better, I opened the abdomen, found the cæcum empty, and traced the small intestine, which was distended and congested, upward and then downward, till I came to a piece of it, 5 or 6 inches long, which was rather more congested than the rest, and was slightly roughened with lymph. Below this point the intestine was pale and contracted, in marked contrast with the coils that lay above it. I decided to make an artificial anus just above the seat of the mischief; so I drew out a loop of bowel just above the roughened part, and fastened it in the wound, meaning to open it in a day or two.

Two hours later the vomiting stopped, and she passed a fluid motion. The distension of the abdomen was all gone, and she was certainly relieved by the operation. Next day she passed a few lumps of very hard, pale, nodular stuff like mortar; she was feverish and delirious.

The day after, December 21, as the bowels were acting well and there was no vomiting, and the exposed loop of intestine showed vigorous peristaltic movements, I foolishly took out the stitches, that the coil might gradually recede into the abdominal cavity and be closed over. But that night her delirium made her very restless, and on the 22nd a large coil of intestine, two feet long, escaped into the dressings. This was at once washed and put back, and I closed the wound at once with strong sutures. For the next two days she seemed to be at the point of death, delirious, restless, feeble, passing frequent loose motions under her.

On the 24th there was sudden acute inflammation of the left parotid gland, with dusky redness of the skin over it, great swelling, and acute tenderness of the gland.

On the 25th she began to mend, and on the 28th the parotitis and the delirium had both of them almost gone; her tongue was moist, and she was in every way much better. The bowels were acting well. There was a little superficial suppuration about the wound, and to this may be attributed one or two slight rigors which she had on the 29th. After this her recovery was uninterrupted.

I believe that the obstruction in this case was due not to any strangulation or twist of the gut, but to the impaction of hard fæcal matter, which was overcome by the free handling of the gut at the time of operation. As regards the hernia, it had always been easily reduced, and had never given her any trouble; and though the piece of intestine which appeared to have been in the sac was rough with lymph, yet it bore no marks of strangulation.

As regards the inflammation of the parotid, I read a paper before the Medical Society some years ago, based on the analysis of 102 cases of this kind. It occurs after disease or injury, or temporary derangement of the abdominal or pelvic organs; and by temporary derangement I mean such causes as menstruation, pregnancy, parturition, the introduction of a pessary, the passing of a catheter, the use of a sound, or a slight blow on the testicle. Cases have lately been published where it followed the continued use of nutrient enemata.

In 93 out of the 102 cases the parotitis was an isolated event, unaccompanied by any similar inflammation elsewhere. There was not one of the 102 that had any effusion into the joints, and only four of them are said to have had rigors. In 33 cases the parotitis subsided without suppuration, and of these 33 only 1 died, and she died of something else.

In a very large number of the cases the parotitis evidently marked a crisis; it occurred toward the end of the patient's illness, it disappeared in a few days, and its disappearance was at once followed by recovery.

The following are the causes of this form of parotitis:— Ovariotomy or oöphorectomy, 27 cases; operations on the uterus or the vagina, 8; delivery or abortion, 8; other derangements of the generative organs, 8; menstrual changes, 4. In 1 case it accompanied each successive pregnancy. In 8 cases it followed disease or derangement of the urinary passages. As regards the alimentary canal, it has followed gastritis, gastric ulcer, gastrostomy, 2 cases; duodenal ulcer, enterostomy, 3 cases; hepatic abscess, removal of umbilical or abdominal tumours, 4 cases; operation for strangulated hernia, 6 cases; perityphlitis, 5 cases; cancer of the liver or the intestine, 2 cases; colotomy, penetrating wound of the abdomen, and acute peritonitis, 8 cases; division of stricture of the rectum, the operation for piles, and the use of nutrient enemata.

It has no fixed period at which to appear; it may occur on any day from the third to the nineteenth. Once it occurred the very next day after a man had been sounded for stone, and once it occurred on the morning of the day fixed for an ovariotomy, some hours before the operation was to be performed, and thus stamped itself for ever as a reflex nervous inflammation.

As regards the question of micro-organisms, Rosenbach found in a case of suppurating parotitis after herniotomy a micro-organism called *Staphylococcus pyogenes aureus*; but this is the commonest of all micro-organisms found in acute suppuration.

This form of parotitis is not due to any blocking of the duct from dryness of the mouth. There are plenty of cases to show the falseness of this idea; moreover the socia parotidis, which lies so near the mouth, was only affected once or twice in all the 102 cases.

The true analogues of this parotitis are to be found in the salivation of some women in pregnancy or menstruation, and their longings for sapid foods; in the salivation that has been observed in gastritis and in cancer of the rectum; and in the arrest of the salivary secretion which can be produced in a dog by drawing out a loop of intestine from the abdomen. It is due, at least in part, to the reflex action of the nervous system, and is not a sign of pyæmia.

XXXIX.—*Sequel to a case of Myxœdema reported to the Society, November*, 1880. By Sir Dyce Duckworth, M.D., LL.D. *Read April* 22, 1892.

F. A. S., æt. 57, came under my care in St. Bartholomew's Hospital on May 11, 1891. In September, 1880, she first came under my observation as an out-patient; she was shown to the Society on November 12, 1880, and a full note of her condition was recorded in the *Transactions* for 1881. At that time there was a history pointing to the disorder having existed for at least three years, if not longer.

In the interval of eleven years I saw this patient from time to time, and she was repeatedly admitted into the hospital for varying periods. She grew gradually more feeble and helpless, but always rallied to some extent under the warmth, rest, and suitable treatment in the wards.

The temperature was generally low, and there were almost always some gastric catarrh and dyspepsia, with a tendency to diarrhœa.

The features grew gradually more and more bloated and characteristic, and the hands larger and clumsier.

Her hair fell off, and finally the scalp was but little covered with a coarse, curly, sparse hair. The toe-nails grew to an extraordinary length. The voice became more hoarse and guttural, and the speech very slow.

For the last few months diarrhœa was the most urgent symptom. At times she complained of feeling very hot. The temperature varied from 95° to 99°, with a mean average of 97°. There was occasional delirium. Some œdema of the ankles occurred. The skin was very harsh and dry.

Latterly the rectum became loaded, and had to be irrigated and the fæces scooped out. Piles formed with some prolapse of the bowel, and a good deal of anal excoriation and ulceration occurred. No malignant growth was felt *per rectum*. No fatty cushions were found over the clavicles.

The knee-jerks were first found absent in February, 1891. Plantar reflex was normal. A little albumen was commonly present in the urine, and on several occasions the output of urea was found to be only 1 per cent.

Ecchymoses at one time resulted on the face from a fall, and were very long in clearing away. Signs of bronchitis occurred. The teeth were all lost.

Latterly she was fed by means of a soft nasal tube.

Death occurred on May 22, 1891. The whole duration of the case may be put at no less than fifteen years, and it may possibly have been of a longer course.

Post-mortem, May 25.—*Disease.*—Myxœdema. Thyroid small, white. Superficial ulcers in large intestine and rectum. Small dilatation of central canal of spinal cord (cervical). Submucous hæmorrhages in bladder.

External appearances.—Some ecchymosis under eyes + L. Hair scanty. No dropsy. Body had a yellowish tinge, but there was no actual dropsy. Skin and subcutaneous tissues seemed quite normal, if anything somewhat thickened and dense; but not much change in any direction. Inner table of scalp had a curious yellow tinge.

Dura mater and sinus.—Normal.

Arachnoid and pia mater.—Bubbles of air under arachnoid (post-mortem change).

Arteries.—Normal.

Brain.—Sulci well marked; membranes separated easily. Cortex in some places looked rather thin, but there was no definite morbid change detected in the brain. It was rather soft throughout, doubtless from decomposition.

Spinal cord.—Membranes normal. Some softening (post-mortem) of lumbar cord. About the middle of the cervical region was a distinct dilatation of the central canal; a little lower down there was also very slight dilatation.

Thyroid.—Small, white in appearance, weighed 2½ dr., but not misshaped. The thyroid of a normal subject contrasted with it was seen to be larger, redder, and weighed 5½ dr.

Lungs.—Right lung adherent; otherwise both lungs normal.

Heart.—Normal (decomposition setting in). Weight 11 oz.

Aorta and vessels.—Some atheroma, especially in lower part.

Stomach.—Normal.

Intestines.—Small intestines normal. Cæcum and colon presented numerous superficial circular ulcers, which in many parts had coalesced into large irregular patches of ulceration. In the rectum were also some large superficial patches of ulceration.*

Liver.—Somewhat soft and pale. Gall-bladder distended with thin fluid, and appeared quite shut off from its duct. Weight of liver 50 oz.

* So-called distension ulcers, probably.

Spleen.—Small, shrivelled.

Supra-renals.—Normal.

Kidneys.—Surface, after separating capsule, appeared in a few places slightly granular; but with this exception the kidneys were quite normal. Weight 11 oz. the pair.

Ureters and bladder.—Mucous surface of bladder showed some raised dark patches, which on section looked like submucous hæmorrhages.

Organs of generation.—Uterus elongated. Ovaries somewhat firm and white.

XL.—*A case of very severe Hæmorrhage following Removal of a Tonsil: ligature of common carotid: transfusion: recovery.* By W. Arbuthnot Lane, M.S. *Read April* 22, 1892.

G. F. S., æt. 21 years, had had no illness but rheumatic fever when ten years of age. He was much engaged in singing, and finding that his voice was becoming weaker he went to the Throat Hospital in Golden Square, where his left tonsil was removed. He said that at the time of the operation and during the four hours following it he lost at least half a pint of blood. This operation was performed on December 16; he had no further hæmorrhage till the morning of the 19th, when he lost about as much as before. The bleeding ceased after a few hours. It returned, however, on the following evening. He was seen by Dr. Herron, who applied astringents, but with only temporary success. Bleeding continued all the following day, and the patient became very feeble and fainted. He refused to go into the hospital, although it was urged strongly upon him.

On the 22nd, as he was evidently dying, his friends consented to his removal, which was performed with some difficulty, though the distance was only about three hundred yards. He was brought at once into the theatre, and an anæsthetic was administered. This affected him so much that I hastily exposed the common carotid, the patient being but slightly under the influence of the anæsthetic. He was so feeble, however, that he scarcely showed any consciousness of pain. The vessel contained so little blood that the mere passage of the aneurysm needle beneath it and its elevation was sufficient to stop the flow of blood through it. While this was being done Mr. Stevens, the house surgeon, had opened the basilic vein and introduced steadily about 3¼ pints of salt solution. Before the operation the pulse was very feeble and 154 to the minute, while after it was over it was 96, large and full. It was not possible to examine the throat before the operation, as the patient commenced to vomit a large quantity of blood on an attempt being made to introduce a gag, and his condition did not allow of delay.

On examining the throat after the operation, beyond that the tonsil had been somewhat freely excised, nothing else

was observed. The subsequent progress of the case was most satisfactory.

It was difficult to estimate the amount of blood he had lost during the fifty-six hours preceding the operation, besides that lost on the 16th and 19th, but as far as could be gathered it appears that it exceeded 4 pints at least. A point of much interest is the length of the intervals between the hæmorrhage that resulted from the operation on the 16th and that on the 19th and 20th instant, when it practically became continuous.

XLI.—*A case of Enterectomy.* By F. T. Paul, F.R.C.S. *Read May* 13, 1892.

On April 9th, 1891, I brought forward at the Liverpool Medical Institution the results of an experimental operation on dogs for the end-to-end union of divided intestine. The method, which is fully described and illustrated in the *Lancet*, May 30, 1891, is as follows:—First the operator is prepared with a decalcified bone tube, to which is attached a needle and a strong silk thread, referred to as the traction thread. The tube is required chiefly to enable the operator to produce an invagination of the bowel which will cover the line of union; but it is also useful for keeping open the channel of the intestine, and as a splint to keep the parts quiet during the early stages of repair. The piece of bowel having been excised the tube is sewn into the upper end, and the traction thread is passed through the wall of the lower segment about three inches down. Next the two cut ends of bowel are quickly attached with a continuous suture. An assistant now draws firmly on the traction thread, whilst the operator produces a short invagination, which is retained in position by three or four Lembert sutures. Finally the traction thread is drawn tight and cut off short, its ends dropping into the bowel.

It is claimed for this operation that—(1) The closure is absolutely secure so long as the bone tube remains intact, or until sloughing has had time to occur. (2) A free passage is at once established. (3) The opening does subsequently diminish or close. (4) The operation has had the appearance up to the present of being *per se* free from danger.

Shortly after concluding the experiments I met with a case of cancer of the descending colon in which I hoped to be able to try the operation, but found that, owing to want of sufficient mesentery, a satisfactory invagination could not be produced in this situation, and had to adopt another method.

Recently in a case of excision of the cæcum I again tried to invaginate large bowel. It readily tucked in for half or three quarters of an inch, but would go no further, and had no grip as in the case of small intestine. If left alone the invagination would have immediately unfolded itself, and

depended entirely upon sutures for its maintenance. I have, therefore, come to the conclusion that the method I advocate is only to be thoroughly relied upon when applied to small intestine, though the tubes may and have been used very successfully in certain cases of resection of the colon.

On November 22 I at last had the opportunity of putting this operation into practice at the Liverpool Royal Infirmary. The patient was a delicate looking woman, confined only six weeks previously. She was thirty-seven years of age and the mother of seven children. About four years ago she first noticed a small lump in the right groin. It did not trouble her except when doing heavy work.

Her present illness commenced nine days before admission. She was attacked with severe shivering and pain in the back. The second day she remained in bed feeling very ill. Could take no food, but did not vomit. The pain moved from the back, and was now of the nature of shooting pains across the abdomen. The third day she was rather better; got up and took some food, but vomited. The fourth day was better still; went out and did a day's charing. After returning home in the evening was seized with severe shooting and twisting pains in the abdomen. Vomited what she had taken for dinner. Drank some beer, but vomited it immediately. Bowels moved slightly. Went to bed and put hot cloths on the abdomen. The fifth day the pain was much worse. Vomiting and thirst; pills given to relieve the constipation. The sixth day was very ill; vomited everything. Seventh day the same. First noticed the vomit to be brown and slimy, and to have a nasty smell. The eighth day vomit the same. Castor-oil enema given with very little effect. On the ninth day the patient was very ill; the abdomen began to swell, and she thought she was going to die. She was brought to the Royal Infirmary.

On seeing her I found she was in a very weak condition, but not so bad as one would have expected from the duration of the obstruction. The abdomen was only moderately distended. The vomit copious and foully stercoraceous. All pain was referred to the umbilicus. In the right groin there was a small hernia; it was soft and not the seat of pain.

The history guided me in the first place to make a small opening in the middle line of the abdomen and explore with the finger, as being the most likely course in which one incision would suffice. In this way a heavy fold of bowel was detected passing across the top of the pelvis and stopping at

the hernia. A second incision was therefore at once made over the sac, which exposed a soft piece of partly blackened omentum, and underneath it a small knuckle of bowel. The latter was not gangrenous, but directly it was disturbed a little fæcal matter escaped. To prevent extravasation, the neck of the sac having been divided, the bowel internally was grasped with the right hand, and brought out of the abdominal wound the instant it was reduced with the left. Examination showed the constricted part to have given way on one side, and to be on the point of giving way on the other. Excision was therefore imperative.

The bowel having been clamped, the affected part, which only measured 1½ inches, was rapidly cut away with scissors, the mesentery being ligatured in one piece. A bone tube was then sewn into the upper end with a fine green catgut suture, great care being taken to attach the mesenteric border securely (see Figs. 18 and 19). This important point

Fig. 18. Fig. 19.

Fig. 18.—Cut mesentery improperly allowed to gape when the tube is sewn in.
Fig. 19.—Edges of mesentery drawn together, but the diagram wrongly indicates a stitch passing through the bowel *without* including the mesentery.

has been emphasised by other surgeons. To neglect it is certainly to neglect one of the safeguards of this class of operation, as the mesenteric border is invariably the weak spot. Next the traction thread was passed through the wall of the lower segment; the cut ends of the bowel sewn together with another fine green catgut suture, and the wound in the mesentery united. Then my house surgeon, Mr. P. E. Davies, held the traction thread firmly whilst I invaginated the bowel for about half an inch, fixing it in this position with four small Lembert sutures. The traction thread was drawn tight, cut off short, and the ends allowed to drop into the bowel.

When invaginating an error must be guarded against. The invagination is most easily produced by allowing it to commence about half an inch or so below the tube (Fig. 21).

This means that the cut will be barely covered by it, whilst the lumen of the bowel will be considerably blocked, and the operation consequently most imperfectly performed. It must be made to commence *immediately* below the tube by drawing the very first part of the lower segment upwards with the tips

Fig. 20.

Producing the invagination *immediately* below the cut.

of the fingers (Fig. 21), and care must be exercised to observe that the mesenteric side of the bowel is as thoroughly covered by the invagination as the other side.

When completed the intestine looked very neat and secure,

Fig. 21.

Showing the invagination carelessly produced, both closing the lumen and barely covering the line of sutures.

the wound being of course invisible under the invagination. It was returned into the abdomen, and the parietal incision closed with sutures of fishing gut.

Attention was next directed to the hernia. The discoloured omentum was ligatured and cut off, and the inflamed and thickened sac excised. The wound was only partly closed on account of the condition of the omentum, and the staining of the parts with fæcal matter. The double operation, including the administration of ether, did not exceed fifty minutes, though as it was Sunday evening we were very short-handed.

When the patient recovered from the anæsthetic the stercoraceous vomiting recurred again and again, until we feared she would collapse. About three hours after the

operation I injected brandy and beef peptones into the rectum, and then morphia subcutaneously until it stopped. After this she passed a fair night, and subsequently progressed so well that very few details need be mentioned. The pulse soon fell to normal, and the temperature never exceeded 100°. The day after the operation she took a pint of arrowroot and brandy and a tin of Brand's essence. The second day a pint each of beef tea and arrowroot, as well as Brand's essence. On the fifth day lemon whey was added to the diet. On the sixth day bread and milk. On the seventh bread and butter. On the eighth custard pudding and baked apple. On the twelfth an egg. On the fourteenth chicken; and from this time a liberal diet was maintained.

The bowels were first moved by glycerine enema on the eighth day after the operation, and subsequently at intervals of a few days, the injection being used each time. Once there was a little cause for anxiety owing to an attack of constipation, but it proved to be nothing more serious than an accummulation of fæces in the rectum, which was completely removed by a good dose of castor oil. No trace of the bone tube was at any time found in the motions.

Three weeks after the operation the patient was first allowed up, and from this time she may be said to have been convalescent. On Christmas Day, just over the month since her admission, she was able to enjoy the extra fare supplied to the patients, and a few days later left the hospital quite recovered. At the present time, six months after the operation, she writes, "My bowels are very regular, and I feel myself strong and quite well again."

I have repeated the operation once subsequently in a case of intestinal obstruction. The patient only lived thirty-six hours, but death was due to continued paralysis of the bowels. The union of the invagination was quite firm all round.

Dr. William Alexander has on three occasions resected the colon for the cure of artificial anus, using the decalcified bone tubes and producing an incomplete invagination. Two of the cases were quite well some time ago, and the third operated on recently is now convalescent. I am not aware that the operation has been performed in any other cases, though Mr. Jessett records in a paper read at this Society during the present session that he has used the tubes in repeating experimentally an operation devised by Dr. Robinson of Toledo.

XLII.—*A case in which Spontaneous Cure of an Aneurysm of the Femoral Artery took place, apparently by inflammatory action.* By Howard Marsh. *Read May* 13, 1892.

J. D., a street pavior, æt. 43, was admitted into St. Bartholomew's Hospital under the care of Sir William Savory, on March 20, 1891, with a pulsating tumour in the situation of the femoral artery in Hunter's canal.

He had complained of pain since Christmas, but was unable to say how long the tumour had existed. No point in his previous history was important, except that he had syphilis twenty-five years ago.

The tumour was the size of a small orange. Pulsation was expansile, and was arrested by pressure on the femoral artery higher up. A bruit was to be heard. The skin over the tumour was somewhat suffused and hot, the subcutaneous veins were distended, and the surface was tender. There was considerable pain in the swelling, and there was also some œdema of the leg and foot. The patient's temperature was 100·2°. Urine normal.

On the following day Sir William Savory and Mr. Langton examined the case together, and agreed that it was one of femoral aneurysm. The condition of the soft parts around the tumour raised the question whether the sac might not be leaking; but it was thought best, as the patient could be kept under close observation, to wait for forty-eight hours, so that the œdema and vascular disturbance might subside, and then to ligature the artery in Scarpa's triangle. The limb was therefore placed in a slightly raised position and kept at absolute rest. Next day, however, pulsation in the swelling began to diminish, and in the evening there was neither pulsation to be felt nor bruit to be heard. Pain had almost ceased, and the œdema had nearly subsided.

On the following day (23rd) pulsation, bruit, and pain were all absent, and the patient's temperature was only 97·2°.

On the 30th the circumference of the limb, measured over the swelling, was 1½ inches less than when the patient first came under observation. The tumour was firm and hard except at its centre, where a sensation of elasticity and almost

of fluctuation could be detected. The artery above was felt like a firm cord.

On April 17 the circumference of the limb was three quarters of an inch less than at the last note. The central part of the tumour was still soft and elastic. From this date the tumour grew smaller and firmer, and on June 2 it was hard and apparently solid throughout. No pulsation in the tibials could be felt.

He was discharged on June 12.

On September 1 he was readmitted with a pulsating tumour in the upper part of Hunter's canal; that is, just above the situation of the former aneurysm. The tumour was fusiform in shape, and extended about two inches in the long axis of the artery. It was slightly painful. A bruit was heard over it; the subcutaneous veins were a little distended; there was some œdema of the leg. The patient was at once placed in bed. When the tumour was examined next day it was found to pulsate no longer, but to have become firm to the touch. Pain and œdema were less marked.

On September 16 (a fortnight later) the tumour was clearly defined, and measured 2 inches in its long and 1½ inches in its transverse diameter. From this date the swelling slowly became smaller and firmer, and by December 18 (in about fifteen weeks after his admission) nothing could be felt beyond a slight hardness.

The patient was discharged well on January 8.

Remarks.—I have ventured to submit this case to the attention of the Society because it seems one of great rarity. The phenomena observed were clear and distinct. The original tumour was obviously a femoral aneurysm. Around this the tissues, apparently as the result of the continued use of the limb after its circulation was interfered with by the presence of the aneurysm, became the seat of vascular disturbance and exudation; and during the progress of this disturbance, or just as it was subsiding under the influence of position and rest, coagulation of blood in the sac took place, and the aneurysm underwent spontaneous cure. In ordinary clinical phraseology the cure was apparently effected by inflammatory action leading to coagulation within the sac. What were the exact steps of the process leading to this fortunate result it may be difficult to say. It is well known that if the lining membrane of the arteries of a rabbit's ear is injured by excluding blood from the vessel (by placing ligatures for some hours above and below, stasis and coagulation will

occur when blood is again allowed to enter—that is, coagulation is determined by the altered condition of the arterial coats. In the case before us coagulation seems to have been induced in the sac by the changes in its walls produced by inflammatory action. Such an occurrence, however, as the cure of an aneurysm by the train of events which I have mentioned, in other words by such a moderate degree of inflammation as was present here, is extremely rare. Mr. Holmes, in his article on aneurysm in the *System of Surgery* (vol. iii, p. 39), says: "Inflammation, without suppuration, in the neighbourhood of the sac, is spoken of by Broca and others as an occasional cause of spontaneous cure. I have not been able to find any cases which are to my mind quite satisfactory." Nor have I myself found, so far as I have been able to search, any clear instances of the kind.

I am unable to say whether coagulation in the artery above took place at the time, or whether it resulted from extension of the clot from the sac in a centripetal direction. It may be going too far to hold that it occurred at the time, and was due to and should be regarded as evidence of arteritis. Yet the vessel felt much more hard and cord-like than arteries generally do above the point at which they are obstructed, *e. g.* by ligature; it felt, that is to say, much as a vein does when it is thrombosed after adhesive phlebitis.

Another view that suggests itself, in explanation of the cure of the aneurysm, is that a portion of clot was accidentally detached, and was impacted in the orifice of the sac. A remarkable feature in the case is that the second aneurysm was spontaneously cured. At the time this event occurred no inflammatory disturbance was present in the surrounding structures. How this cure was brought about seems uncertain. The most likely explanation probably is that it was by the detachment and lodgment of a fragment of clot in the orifice of the sac: and it may be contended that what may reasonably be assumed to have happened to the second aneurysm happened to the first also.

XLIII.—*A case of Non-tuberculous Hæmoptysis of one year and two months' duration occurring in association with cirrhosis of the kidneys.* By Francis Hawkins, M.B. *Read May* 13, 1892.

JAMES R., æt. 42, married, a carriage painter, came under my observation complaining of "spitting blood," in reference to which symptom he gave the following history:

About twelve months ago, one day while walking along the street a sudden fit of coughing came on, during which about one pint of blood of a frothy light colour was coughed up; he was taken home in a cab, and for a day or two after this there was some expectoration tinged with frothy blood. Since this, the first attack, there have been frequent attacks of hæmoptysis, the blood varying in quantity, at one time being considerable, at another a mere tinge. It varies also in colour, at one time being dark, at another quite bright; occasionally the blood comes up into the mouth without any cough, but usually it is either during or after a fit of coughing. To arrest this hæmoptysis the advice of many medical men had been sought but no relief obtained, and in some instances he considers the hæmoptysis has been increased by medicines given, and markedly so on two occasions, when he was treated by subcutaneous injections.

Family and previous history.—Father died from kidney disease. His mother, brothers, and sisters are all living, and in good health. There is no history of phthisis in any branch of the family. He formerly resided in Edinburgh, and while living there drank whisky very freely, but describes himself as being, on the whole, a fairly temperate man. His previous health has been good, and, with the exception of an occasional attack of bronchitis, he has never been ill till the onset—twelve months ago—of hæmoptysis. Five months ago he was treated for an attack of pleurisy. On further questioning I elicited the fact that there had been swelling under the eyes and frequent micturition, the patient having to get up some two, three, or four times during the night. There has never been any epistaxis, night sweats, diarrhœa, or œdema, beyond the swelling under the eyes previously mentioned.

Examination of the patient.—Well built, of average height,

marked pallor of skin of face with sallow tinge; palpebral conjunctiva, mucous membrane of mouth and lips are of a fairly normal red colour. The temporal arteries are tortuous and very prominent. Pupils equal, contract to light. Voice slightly husky. Patient stoops very much. No œdema, no clubbing, no blue line on gums. Temp. 98·4°.

Thorax well formed. Coverings good. Movements fairly good. Some slight drawing in of soft parts over the supra-clavicular regions. Distinct pulsations in carotids and subclavians. The brachial arteries are tortuous, pulsate forcibly, and are firm to the feel. Epigastric pulsation distinct. Apex-beat sixth interspace, half an inch inside nipple line.

Apex-beat felt as seen (viz. sixth interspace, &c.), is slow, regular, heaving. Upper border of cardiac dulness is on level of third rib in left parasternal line. Right border cannot be distinctly defined, but extends to right of sternum. The sounds at apex are muffled, dull. Second sound aortic area accentuated. No murmur heard over any area.

Pulse.—Full, strong, tense, prolonged, regular.

Lungs.—The percussion note anteriorly is somewhat hyper-resonant, having somewhat of a muffled character over the left infra-clavicular region. Breath-sounds over this region are of a soft, vesicular character, with expiration slightly prolonged, and are accompanied by a few râles. Posteriorly and laterally the percussion note is fairly normal in all regions, with one exception, viz. the left infra-scapular region; over this region the percussion note is decidedly muffled, almost dull, and vocal fremitus somewhat diminished. The breath-sounds are indistinct, and numerous râles are heard. Râles similar in character are also heard over the right infra-scapular region, but the breath-sounds are distinct and normal in character. Over all other regions the breath-sounds are normal vesicular. The heart sounds are distinctly heard, but muffled in character, over the left infra-scapular region. The abdominal organs are normal so far as physical examination is concerned.

Urine.—Quantity not ascertained. (The patient was seen as an out-patient.) Specific gravity 1010; acid, pale in colour; one third albumen.

Microscopical examination.—Hyaline casts.

The *vocal cords* move freely, but are somewhat congested.

No ophthalmoscopic examination was made.

Diagnosis.—Taking into consideration the occupation (carriage painter), the early life of the patient, viz. his fre-

quent and excessive taking of whisky, together with the frequent micturition, low specific gravity of the urine, the presence of albumen and hyaline tube casts, great hypertrophy of the heart with general arterio-sclerosis, it was thought that the patient had cirrhosis of the kidneys. The question then arose, what was the cause of the hæmoptysis? Tuberculosis in its various forms is found associated with renal affections, and is quoted by many writers as a complication of cirrhosis of the kidneys. My strong impression was that tuberculosis did not exist in this case; it was true that the character and history of the hæmoptysis was that of a true hæmoptysis (that is that it came from the air-passages or lungs), but the physical signs, as I interpreted them, were not those of tuberculosis. The note over the left infra-clavicular region was certainly muffled, which it may be in emphysema over a tuberculosis, but there was no sense of resistence on deep percussion. The breath sounds were of a soft, vesicular character, and the lung expanded. I might here observe that such a condition has been observed by me clinically (and proved by *post-mortem*) to exist in some cases of hypertrophy of the heart, not only in cases of hypertrophy associated with renal disease, but also in hypertrophy and dilatation of valvular disease; and I have seen instances where the non-recognition of such has lead to an erroneous diagnosis of tuberculosis.

The condition at the left base was considered to be an adherent and thickened pleura with retention of bronchial secretion. There was not any sign or signs of an aneurysm. The hæmoptysis was therefore regarded either as a hæmorrhage from the bronchial mucous surfaces, or due to arterial degeneration, with high arterial tension opposite. Such a condition has been suggested by Sir Dyce Duckworth in cases of hæmoptysis with emphysema. (*St. Barth. Hosp. Reports*, vol. xi, 1875.)

Treatment.—Taking into consideration that the hæmoptysis was associated with high arterial tension, it appeared to be well to give some drug which would tend to lower arterial tension, dilate the small capillaries, and so increase the surface over which the circulation extends, and believing, as I do, that the action* of the iodide of potassium is towards this end, it was prescribed, with the result that on my next seeing the patient—five days later—the arterial tension was less, the

* G. W. Balfour, *Edin. Med. Journal*, July, 1869; Germain See, *Lancet*, 1889.

hæmoptysis was decidedly less, and the patient expressed himself as feeling better than he had done for months. The patient while under this treatment continued to improve.

Subsequent history of the case.—The patient shortly afterwards obtained admission to the North London Consumption Hospital, and was considered by the physician to be suffering from hæmoptysis associated with tuberculosis, and was being treated with liquid extract of ergot. Under this treatment the arterial tension was increased, as also the hæmoptysis. A few days after taking the ergot, and while it was being taken, one pint of blood was expectorated; it was coughed up, was frothy but dark in colour. During this attack of hæmoptysis sonorous and sibilant râles were heard all over the chest; the ergot was stopped and, at my suggestion, iodide of potassium substituted with a marked benefit. For four days the patient had no hæmoptysis; he subsequently became worse, and died two months after first being seen.

Post-mortem.—Body fairly well nourished, no œdema. On removing the sternum the anterior border of the right lung was observed to extend to the left of the middle line. The left lung, which was slightly retracted anteriorly, was adherent at its base, and the pleura was somewhat thickened.

The left lung was emphysematous anteriorly. The lower lobe was very œdematous, and in parts was apparently semi-solid, and on section about an inch or so above the base it had the appearance of carnified lung (an apoplectic condition?).

The right lung was emphysematous and œdematous.

The bronchial tubes were somewhat congested, but the surface was in no part ulcerated.

There was no tuberculous deposit in either lung.

The liver was not cirrhotic.

Kidneys.—Small and cirrhotic. Capsule adherent; several small cysts in each.

The heart was greatly hypertrophied, but the valves were competent.

Remarks.—This case is, I think, of sufficient importance to be brought before this Society, both from its clinical as also therapeutic interest. Hæmoptysis as the prominent symptom, extending over several months, associated with cirrhosis of the kidneys is uncommon if not rare. While epistaxis occurring during the course of chronic renal disease, and cerebral hæmorrhage occurring both during the course and also as an immediate cause of death, are well known to writers on medical subjects as well as to practising physicians, hæmop-

tysis as a symptom is not so. With one exception, I cannot in English medical literature find any reference to the subject; no article on hæmoptysis to which I have had access mentions its possible or probable association with renal disease. The exception is Dr. Dickenson, who, in his work on *Diseases of the Kidneys*, mentions that in one instance in his practice there was copious frothy expectoration which was often tinged with blood, and the lungs at this time were found to have become suddenly pervaded with bronchial and moist sounds. And, later on, Dr. Dickenson states hæmoptysis is one of the rare accidents of the disease. While literature is thus silent practising physicians are, I believe, familiar with the condition; at least I gather so from conversation with two or three on the subject. Some French writers assert that broncho-pulmonary hæmorrhage in cirrhosis of the kidneys is common. As regards German literature, I have not come across any book or treatise which speaks of it, but my acquaintance with foreign literature is not extensive. I may, perhaps, briefly state the conditions under which I have seen hæmoptysis in renal disease. The most frequent condition has been in renal cirrhosis, when hæmoptysis has been a symptom indicative of approaching death. It may occur a week or a few days before, or even only on the day of death. It is accompanied by frothy expectoration, and is due to congestion and œdema. Once only have I met with hæmoptysis in a case of large white kidney, in which case the hæmoptysis occurred three days before death, and was due to pulmonary infarct; there was no cardiac lesion beyond a dilated mitral valve.

Apart from this, which I might call terminal hæmoptysis, I have once met with hæmoptysis, which occurred on one occasion only two years before death, in a case of renal cirrhosis. As the case is interesting I briefly record it.

G. G., æt. 45, unmarried, in a Government office, was sent to me by his medical attendant as suffering from tuberculosis of the left apex, stating that the physical signs were slight, but that he had had hæmoptysis. The history of hæmoptysis was as follows:—He had for some time a cough in the early morning, and on one occasion while coughing expectorated a teaspoonful of bright blood. The day following a few streaks were coughed up. Since that occasion no hæmoptysis had occurred. The patient was of a sallow complexion. The heart was greatly hypertrophied and the second sound at the base accentuated, and there was evidence of arterio-sclerosis.

The percussion note over the left infra-clavicular region was muffled. The breath-sounds were vesicular, and there were a few moist râles. The urine, which was frequently passed at night, was of a sp. gr. 1010, but contained no albumen.

I wrote the medical attendant that I did not consider the case one of tuberculosis, but one of cirrhosis of the kidneys, and that the hæmoptysis was due to rupture of a small vessel or a small aneurysm of a bronchial artery. The physical signs at the left apex were attributed to the altered condition of the lung owing to the hypertrophy of the heart. A few months after the hæmoptysis the patient had slight hemiplegia of the left side. A year and a half later I again saw the patient, when there was albumen in the urine with hyaline tube casts, and I thought also early optic neuritis. Subsequently the patient died, but no post-mortem was allowed.

Therapeutic interest.—There can, I think, be little doubt but that the drug administered by the eight medical practitioners who had previously treated the case was ergot, especially in the two instances in which subcutaneous injections were administered. In every instance, according to the statement of the patient, the hæmoptysis was increased. In subsequent treatment, during the administration of the iodide of potassium, the tense arteries became much less so, and with this the hæmoptysis became less. Again, when ergot was administered the arterial tension was much increased, and the hæmoptysis also increased. This fact tends in a measure to support the view I have for a long time held, which was first suggested from observation of cases in the Brompton Consumption Hospital: "That the treatment of hæmoptysis in a routine way with ergot is wrong; and that ergot, in many instances, produces an increase of the hæmoptysis rather than a diminution."

XLIV.—*Two cases of Tubercular Disease of the Breast and Axillary Glands.* By W. Arbuthnot Lane, M.S. *Read May* 13, 1892.

My object in bringing the following two cases before the Society is to obtain some information from its members as to their experience of the supposed rarity of this affection of the breast. My opinion is that tubercular disease of the breast without infection of axillary glands is by no means rare. One cannot but be struck by the frequency with which one finds chronic suppuration in the breast during lactation in those who have very marked phthisical antecedents, or who have also advanced pulmonary tuberculosis at the same time.

In reading a very interesting description of a case of tubercular disease of the breast in the *Transactions of the Pathological Society** by Mr. Shattock, I find the following statement :—"There is, so far as I am able to ascertain, but a single case to be found in modern English literature, and that is one briefly recorded by Dr. Hebb—so briefly, indeed, that were it not that it is published in the Society's *Transactions* (vol. xxxix) it might excusably be overlooked." Mr. Shattock also expresses much doubt as to the supposed rarity of tubercular disease of the breast alone, and would assume that many cases of chronic suppurative mastitis are tubercular.

As the first case was published in the *British Medical Journal*, September 13, 1890, I will deal very briefly with it here.

S. A. C., æt. 38, a robust woman and unmarried, had suffered from a tumour of her breast for eighteen months. This proved to be a branching abscess, which involved the greater part of the organ. Associated with this abscess were a number of matted, caseating, and suppurating glands in the axilla, which were all removed. They were typically tubercular in section. She has no evidence of tubercle elsewhere, and she had, as far as could be gathered, no phthisical antecedents. She got quite well after the operation, and had no recurrence of the tubercular mischief.

The second case is that of a married woman, E. T., æt. 34,

* Vol. xl, *Tubercular Disease of the Breast.*

who came under my care in Guy's Hospital in December, 1891. Some of her brothers and sisters, and probably also her mother, suffered from tubercular affections.

She had two children. She was unable to nurse the first one, but the second took the breast for two months. While nursing that child, which is now four years old, she suffered from an abscess in the left breast. This abscess burst, and continued to discharge at intervals since. About a year ago a second swelling appeared at a distance from the original abscess, and it gradually increased in size till it reached its present dimensions. She had lost flesh lately. On admission she was found to be a very delicate-looking woman, with very distinct changes in the apex of her left lung. There was a discharging sinus leading into an abscess cavity in the outer part of the breast, and a distinct abscess cavity in the lower segment of the organ. There were a number of glands filling up the axilla, one of which had broken down and discharged its contents into the sinus already described.

The abscess cavities were freely opened up and scraped, and the glands, which were matted together, caseating or suppurating, were removed as completely as possible. She progressed satisfactorily after the operation, though some induration remained in the locality occupied by the glands.

I also had under my care a patient with chronic mammary abscesses in both breasts. She had a strong family history of phthisis, but, though very phthisical-looking herself, no evidence of tubercle could be found in her lungs.

Associated with either mammary abscess she had considerable enlargement of the axillary glands.

She would only allow the abscesses to be opened and drained, so that I cannot state the condition of the glands, nor am I aware whether they subsided after the abscesses ceased to discharge.

XLV.—*Cases of Cubitus Valgus and Cubitus Varus arising from fracture at the elbow-joint.* By T. W. Nunn, F.R.C.S.Eng. *Read February 23rd,* 1892.

At the commencement of the Session 1888–9 of this Society I brought forward a case, the consequence of fracture of the elbow-joint in a schoolboy. The immediate purpose of the communication was to record an instance of complication by the laceration of, or some other violence to, the ulnar nerve. The injury to the nerve had so far impeded its function that there was paralysis of the muscles supplied by it, and a loss of sensation in the area of its distribution. I, however, stated that besides the injury to the nerve there was a bowing inwards of the limb, and I took the opportunity of suggesting that, as some deformity of a similar or of an analogous kind so often resulted from fracture at the elbow, it would be well to replace the usual treatment in the flexed position by putting up the arm in an extended one. The woodcut outline on page 246 illustrates the inward bowing referred to, and is from a photograph of the arm of the patient now having grown up; it shows a condition of cubitus valgus.

I was not aware at the time that Dr. Illingworth, of Accrington, had already, in a paper read at the meeting of the British Medical Association held in Dublin, 1887, advocated this position, and had invented a special splint, as Dr. Illingworth did not succeed in getting his paper reported in the *Journal* of the Association until February, 1889.

On the other hand, Mr. Christopher Heath, late President of this Society, in a lecture on "Fractures of the Upper Extremity," delivered at University College Hospital, and published in the *Lancet*, January, 1889, advised, as of old, the treatment of fractures at the elbow in the flexed position, and accentuated his teaching by giving the history of the case of a military officer who, after treatment in India of a fracture at the elbow in the *extended* position, had experienced, to quote the words of the lecture, "disastrous results." The fracture was caused by a fall from horseback at polo playing. There had been sloughing of the whole front of the forearm and destruction of the ulnar and median nerves. I submit

that in this case the sloughing and destruction of the nerves was not caused by the adoption of the extended position, but that the "disastrous results" were brought about by the severity of the injury and the possible absence of requisite watching in the early days after the accident. I do not pretend to criticise a treatment of which I was not a witness. The headlong pace at polo would account for the severity of the injuries, and there may have been local circumstances rendering the requisite watching unattainable. Any way, however, the case affords a striking example of the serious nature of fracture at the elbow-joint, for where there is fracture, not to mention the addition of a dislocation, the consequent very rapid and extensive swelling makes the risk of mischief from bandage-pressure great, and constitutes an

Fig. 22.

almost insuperable obstacle to the attainment of an exact knowledge of the actual condition of the joint itself, or rather of the parts entering into the formation of the joint.

Shortly after the date of my communication Sir James Paget pointed out to me in the *Proceedings of the German Surgical Society*, Congress, April, 1888, a contribution by Dr. Carl Lauenstein, of Hamburg, on the treatment of fractures at the elbow-joint by the extended position (also published in Von Langenbeck's *Archives*, vol. xxxvii). In it Dr. Lauenstein says this treatment secures a greater mobility of the joint, and prevents the occurrence of the deformity of either cubitus valgus or cubitus varus, a deformity which, notwithstanding there may be no serious accompanying want of mobility, may prove of ultimate prejudice to the patient, as, for instance, by the calling in question his capacity for the military profession.

Woodcut B is from the arm of a gentleman, now a field officer in Her Majesty's Service, who, when a candidate for admission as cadet at the Royal Military Academy, Woolwich, narrowly escaped rejection by the medical examiner, on account of the deformity of cubitus varus, consequent on an injury to the elbow-joint when a young lad. At the Pathological Society I exhibited in 1865 a cast of the then boy's arm (*vide Transactions*, vol. xvii, p. 220), believing the injury the boy had suffered was a subluxation; and in this view of the case the late Mr. James Moncrieff Arnott, who saw the patient with me, coincided.

I had, however, afterwards reason to alter this opinion, for on dissection of a similar deformity found in a subject brought into the anatomical department of the Middlesex Hospital Medical College (the deformity being detected by Mr. Albert Reeves, now on the staff of the London Hospital, then our Demonstrator of Anatomy), it was evident that a badly united fracture of the lower end of the humerus, immediately above the condyles, had caused a similar deviation from the normal contour of the limb. The preparation was shown during the following session of that Society, and I, at the same time, distinctly stated that the deformity in question was only observable on complete extension (*vide Transactions*, vol. xviii, p. 211), it being hidden by flexion. It is in relation to this masking of malposition of the fragments by the flexure of the limb, that treatment by the method recommended by Dr. Lauenstein and by Dr. Illingworth has an important advantage, since the surgeon can by his eye detect any deviation from the normal direction of the axes of the humerus and bones of the forearm. To this advantage Dr. Lauenstein attaches great weight, and he

further adduces in support of his recommendation, that in the extended position the bones of the forearm afford a lever in adjusting the fracture of the lower end of the humerus; and besides this, it has the advantage that the anterior portion of the capsule of the joint is held on the stretch, so that there is less danger of the bones of the forearm becoming entangled in the callus, and of the mobility of the joint being interfered with thereby.

With regard to the gravity of fracture at the elbow, the age of the patient has an important influence. Is the risk of anchylosis greater if the accident occurs before puberty than afterwards? Thus fractures at the elbow fall into two classes: those before consolidation of the epiphysis, and those when the lower end of the bone has firmly united with the shaft, when the epiphysis and the diaphysis are one.

Other photographs illustrating the deformity, for some of which the writer was indebted to Dr. Illingworth, were exhibited.

XLVI.—*A case of Sarcoma of the Buttock treated by ligature of the internal iliac artery.* By Frederick Treves. *Read May* 27, 1892.

THIS case has been brought forward for the purpose of illustrating the effect of the ligature of a main artery upon the progress of a sarcomatous growth.

The patient was a sturdy-looking lad of 16, who was engaged as a bricklayer's labourer. He was sent to the London Hospital by Dr. Alfred Kennedy, of Plaistow, and was admitted on October 8, 1889. His muscular development was exceptional for his age, and from his physique it would have been supposed that he was older than he was. He had always enjoyed good health. There was no fact in the medical history of his family calling for comment.

He came to the hospital with a large swelling over the left buttock. He had had a fall some six months previously, in which he had alighted upon this part of his body. He soon recovered from the accident, and no symptoms remained to remind him of it. Two months before admission he began to have pain in the left hip. It was at first noticed only when he walked. It later became more continuous.

On admission on October 8, 1889, he was very lame. His gait was that of a patient with hip disease. Any attempt at movement evidently caused considerable suffering. The most he could do in the way of movement was to "walk" round the bed. This short distance was accomplished partly by hopping on the sound leg, partly by shuffling, and all the while the body was supported by the hand resting upon the edge of the bed. Without support he could not walk a step.

The swelling occupied the whole of such part of the gluteal region as would be represented by the posterior half of the os innominatum. It formed a conspicuous projection about the size of the two fists when placed together. It was globular in outline. Above it reached to the iliac crest, and below to the great trochanter. Its outline was fairly well defined, although it was evidently deeply placed. The skin covering it presented a few conspicuous veins, but was in other respects normal. In the anterior one third of the tumour fluctuation was distinct. The rest of the mass felt elastic and exhibited a pseudo-fluctuation. The patient

thought the swelling had appeared about six weeks before admission. It was not noticed until some time after the pain had set in.

The mass was not tender to the touch, but it is remarkable that the patient complained of great tenderness in the groin. No enlarged glands were discovered there nor in other parts.

The thigh was kept flexed and adducted, and when lying in bed the patient supported the limb with his hand. He was very loth to have it moved. Pressure of the head of the femur against the acetabulum caused no pain. There was no pain in the knee. The temperature ranged between 99° and 100°.

The history of an accident, the lameness, the position of the thigh, and the presence of a fluctuating gluteal swelling suggested an abscess about the hip. The evidence, however, was not convincing. The larger part of the swelling exhibited no fluctuation, pressure of the femur against the acetabulum caused no pain, while the temperature was valueless as a guide.

The majority of those who saw the case inclined to the diagnosis of sarcoma.

The lad rested in bed for four days with his thigh supported upon a pillow. He became much easier. On October 12 an exploratory incision was made into the fluctuating part of the tumour. About one and a half ounces of clear serous fluid escaped. A cyst had been opened. An extension of the incision revealed a solid but very vascular growth. A small fragment was removed for examination. It proved to be spindle-celled sarcoma with many round cells. The bleeding was very free, but was arrested by pressure. As soon as the dressings were removed the hæmorrhage recurred, and for some ten or twelve days it gave considerable trouble.

From first to last a good deal of blood must have been lost. The tenseness of the swelling was, however, removed, and the patient was greatly relieved. In due course the wound healed soundly. The tumour soon sprung forth again, soon reached its original proportions, and gave evidence of very rapid growth.

By November 8—*i. e.* one month after admission—the patient was worse than ever.

The tumour had grown so vigorously as to have almost doubled its size. It was again very tense, and now occupied

nearly the whole buttock. The pain was very severe, the patient could only sleep with morphia, and he could not bear to have the thigh touched. He had lost flesh and had become cachectic-looking. It was evident that the constant pain was wearing him out.

I resolved to tie the internal iliac artery. No other measure for the relief of the patient's distressing symptoms appeared possible.

The operation was performed on November 8, 1889. I opened the abdomen in the median line below the umbilicus. The pelvis was tilted until the intestines were easily displaced upwards. A few large sponges introduced into the abdomen kept the coils out of the way and the area of the operation absolutely clear. The peritoneum was divided over the vessel to the extent of 1½ inches. The artery was followed down from the point of bifurcation of the common iliac. The vein appeared to be nearly three times the size of the artery. Care had to be taken to avoid the ureter. As many sympathetic nerve-fibres accompany the vessel it is well that it should be thoroughly laid bare. Catgut was used for the ligature.

No operation could have been simpler, and it occupied but a very short time. The abdominal wound was closed in the usual way and healed well. No growth was discovered in the pelvis.

The improvement that took place in the patient's condition was remarkable. The pain left him entirely before ten days had elapsed. He soon was able to move the limb without inconvenience. His sleep was undisturbed. His appetite returned. He lost the drawn and careworn look, and began to rapidly gain flesh.

The strangest feature was the subsidence of the tumour. As each week passed it became smaller and smaller. Had not a section of the growth been actually made the correctness of the diagnosis must have been seriously questioned.

Within a month of the operation the patient got up. He was weak from long confinement to bed, but he could walk without pain. He left the hospital on December 10, 1889.

He came to show himself on January 17, 1890 (nine weeks after the operation). He had nothing to complain of. He could readily walk eight miles a day, and had actually walked that distance on the day on which he came to show himself. He was robust-looking, and, according to his friend's impression, he was as well as ever. He had regained

his normal weight. The tumour was no longer visible. On palpation it was found to be much shrunken and much firmer, and was now quite small.

So remarkable was the alteration in the patient that once more it seemed as if by some strange accident an error must have been made in the diagnosis. The very copious bleeding which followed the exploratory incision suggested that an aneurysm with unusual features had been dealt with.

The patient came to the hospital from time to time. When last seen the growth was increasing again, but the pain originally complained of had only returned in slight degree.

He kept about until the end of August, 1890. By this time the mass had attained to nearly its original size. He took to his bed early in September, and died on January 6, 1891, fourteen months after the operation.

Before his death the tumour fungated, and the lad became greatly emaciated. No post-mortem examination was made, and, so far as I am aware, there were no evidences of secondary growths elsewhere.

The simple operation carried out gave the patient immediate relief from very distressing symptoms, and enabled him to continue to move about for a period of ten months.

XLVII.—*A case of Gastrostomy for stricture of œsophagus at the age of four: eventual restoration of the normal passage.* By H. H. Clutton. *Read May* 27, 1892.

FOR the notes of this interesting case, and for the care and attention bestowed upon this little patient, I must thank the successive house surgeons at the Victoria Hospital—Mr. Staveley, Dr. C. W. F. Young, and Mr. Robert Nairn.

A girl, æt. 4, was admitted by Dr. Wm. Wallis Ord into the Victoria Hospital for Children on July 30, 1889, with the following history:—Seven weeks previously, when she was three years and ten months old, she had swallowed a piece of caustic soda whilst some workmen were unloading at a starch manufactory. Her mouth was very much burnt at the time, and she was taken to a hospital. When her mouth had improved she was able to take liquid food for a time. But gradually this became more and more difficult, till finally, four days before admission, she had been unable to swallow anything at all. A bougie was arrested at 6 inches from the teeth. Her weight was 1 stone 12½ lbs.

During August no bougies were passed. She was fed chiefly by nutrient enemata, and her power of swallowing was found to materially improve—so much so that she could at the end of the month swallow milk and beef-tea freely. Her weight had, however, only increased ½ lb.

September 1—13.—Frequent attempts were made to pass bougies, both with and without the assistance of chloroform, but all were unavailing. She lost 4 lbs. in weight during this fortnight.

September 13.—Mr. Clutton performed œsophagotomy, with the hope of being able to obtain direct access to the stricture. The obstruction was, however, found to be just within the thorax, and could not be drawn into the wound for inspection. Bougies of all kinds were passed both through the mouth and through the wound, but none were successful. The wounds in the œsophagus and in the neck were therefore rapidly closed with sutures, and the first stage of a gastrostomy immediately commenced.

An incision was made 1½ inches long, parallel with the left costal margin, and the abdomen quickly opened. The

omentum and transverse colon presented and were pushed on one side. The stomach was with difficulty drawn forward and rapidly fixed with two harelip pins to the wound in the abdominal wall. They were pushed through the whole thickness of the abdominal wall across the axis of the wound, but only through the serous and muscular coats of the stomach. This method was adopted on account of its rapidity of execution, as some time had necessarily been spent in exploration of the stricture through the œsophagus.

To ensure a large surface of the visceral and parietal layers of the peritoneum being brought into contact a few sutures were passed about the centre of the wound from the serous surface to the skin, and the rest of the wound closed. The child rallied well from the shock of the double operation, and passed a good night. She was fed by nutrient suppositories. The temperature rose next day to 102° F., but subsequently gave no cause for anxiety.

At the end of the fifth day (September 18) the second stage of the gastrostomy was completed without chloroform. An opening having been made into the stomach, a silk suture was passed through each edge of the incision and attached to one of the harelip pins. As the skin was not touched by the needle no pain was caused. A No. 9 catheter was introduced and 3 oz. of peptonised milk at once given. The catheter was left in, and orders given that she should be fed in the same way every three hours. The pins were removed on September 24. She rapidly gained flesh, and on November 20 weighed 28 lbs. 13 oz. Dr. W. W. Ord, who was then house physician, suggested a most useful plug which entirely prevented any leakage in the intervals of feeding; this was a rubber protector made for the end of a thermometer. The skin around the fistula was consequently never at any time excoriated. During November she was running about the ward, but till the end of this month no attempt was made to pass an œsophageal bougie. Several efforts were then made to pass a bougie through the œsophageal obstruction, but always without success.

December 9.—Chloroform was given and bougies passed both through the mouth and through the gastric fistula into the œsophagus, but nothing could be made to pass through the stricture.

No further attempt was made to pass bougies till the end of January, 1890, as it was thought best to give the parts absolute rest.

January 12, 1890.—She was bright and lively, but can swallow nothing. Weight 2 st. 5½ lbs.

January 25.—On testing her again a few days ago it was found that she could swallow a teaspoonful of milk very slowly without regurgitation, and is now taking a pint of milk by the mouth in the day.

January 27.—Under an anæsthetic a very small whalebone bougie was passed through the stricture and tied in.

January 30.—Whalebone withdrawn and replaced by No. 3 bougie.

February 3.—Bougie withdrawn and Nos. 4, 5, 6, and 7 passed, the last tied in.

February 6.—No. 7 withdrawn and No. 9 passed. It was, however, removed, as there had been a good deal of salivation from the retention of the bougies and a slight rise of temperature.

During the rest of February the bougies were passed with varying success, but never reached beyond the size of No. 9. She was able to swallow mince slowly and any amount of milk, but at night she was fed by the gastric fistula.

During March and April there was increasing difficulty in passing bougies, so that the smaller sizes had to be employed, and even these sometimes failed. At the same time she had greater difficulty in swallowing. She then had bronchitis, and during this time no bougies were passed at all. After this period of rest larger bougies could be passed. It was therefore decided to introduce them about once a week, or once in ten days.

During May and June the passage of the instruments was often very difficult and sometimes impossible, and smaller sizes had again to be employed. Soft pewter bougies seemed to answer better than gum-elastic.

During July and August bougies of all kinds and sizes failed, but the child continued to swallow liquids and mince by the mouth, and remained in good general health. She was then fed entirely by the gastric fistula, so as to give the œsophagus complete rest.

On August 28, after two more failures, during a fortnight in which no attempt was made to pass any instrument, a small pewter bougie was successfully introduced, but no other could be passed.

During early part of September she was sick and unable to swallow anything, attempts to do so being followed by regurgitation.

On September 17 a small pewter instrument was passed through the stricture and tied in, reverting practically to the original method with which this treatment was commenced.

On the 18th this was replaced by No. 7 gum-elastic œsophageal bougie and also tied in.

On the 18th and 19th the same method was continued and No. 10 tied in. After this the instruments were not tied in, but passed daily, Nos. 10, 11, and 12 being used, and the patient was allowed to swallow.

During October the same sizes were passed, but for a day or two at a time they were omitted, according to the difficulty that had been experienced on the last occasion.

During November they were passed twice a week, and the sizes increased to Nos. 13 and 14.

During December all difficulty appeared to be at an end, but the bougies were continued as before.

January 12, 1891.—Just sixteen months after the gastrostomy, the plug in the gastric fistula was left out, and on the 23rd she was allowed to go home on the understanding that she came once a week for the passage of the bougies.

May 7.—"Readmitted on account of the gastric fistula. She had attended weekly, fortnightly, and latterly monthly, to have No. 14 bougie passed. This has always been accomplished without difficulty." There was no excoriation around the fistula, but it occasionally discharged a little fluid. As there was now no contraction to be felt on passing the bougie (No. 14), it was thought that an attempt might be made to close the fistula.

On May 11 the fine point of Pacquelin's cautery was therefore passed, under chloroform, through the fistula.

By June 10 the fistula appeared to have closed, a small patch of granulations alone remaining at the orifice. She was allowed to leave the hospital.

On July 11 she was admitted again on account of the fistula, which had not closed, but discharged very much less than formerly. Pacquelin's cautery was again applied, and the patient allowed to go home in about a week.

She attended once a month to have the bougie passed, and latterly once in six weeks.

December, 1891.—The bougie (No. 14) passes without any difficulty or sign of recontraction, but the fistula still exists, for a probe can be passed into the stomach. But the amount of discharge from the orifice is so insignificant that it seems scarcely worth while to interfere by any operation.

It produces a stain of about the size of sixpence in twenty-four hours.

February, 1892.—No. 14 passed. No sign of contraction.

May, 1892.—Fistula had closed.

The case is interesting from several points of view. Firstly, the age of the child, which was a little under four years. Secondly, gastrostomy had to be performed to save life. Thirdly, the œsophagus was eventually restored to its natural function.

Mr. Morgan recorded an exactly similar case in *Clin. Soc. Trans.*, vol. xix. A boy, æt. 9 years and 3 months, who came under his care in 1885. The œsophagus had not been re-established at the time the case was recorded, but Mr. Morgan informs me that this was successfully accomplished shortly afterwards, and that the gastric fistula has now been closed two or three years.

Gastrostomy by harelip pins was, I believe, first suggested by Mr. Macnamara, and successfully carried out by Mr. Boyce Barrow in 1884 (*Brit. Med. Journ.*, February 2, 1884, p. 1134). It seems to me to fulfil every requisite for a rapid operation with good apposition of peritoneal surfaces.

XLVIII.—*A case of Leucocythæmia treated with Arsenic.* By Douglas Drew, M.B., B.S.Lond. *Read May* 27, 1892.

THE following case is of interest as a supplement to a similar case in which more extensive observations were made of the effect of arsenic on the blood by Mr. A. E. Barton while he was house physician to Dr. Ringer (the report of which may be found in the *Therapeutic Gazette* of September, 1888).

I wish to thank Dr. Ringer, under whose care the patient was, for his permission to publish these notes.

W. S., æt. 21, was admitted to University College Hospital on August 8, 1891. The history obtained was that until three months before admission he had enjoyed good health, following his occupation of jeweller. He first noticed that he was growing weak, and was losing flesh somewhat. After these symptoms had persisted about six weeks he began to have pain in the left side of his abdomen, but it was not severe, and he paid no attention to it.

He only noticed that his abdomen was getting larger shortly before he came to the hospital, and was unaware of the presence of the tumour. There were no other symptoms, no epistaxis. He had always lived in London.

August 8, 1891.—At the time of admission he was distinctly anæmic; his face, lips, and conjunctivæ were pale.

On examination his abdomen was seen to be somewhat full, and the umbilicus was stretched transversely; its two sides appeared to be about equal in size.

A large tumour was felt on the left side, which was evidently the spleen, and was slightly tender. Its anterior border came from beneath the costal margin just at the ensiform cartilage, and it sloped downwards and to the right to a point an inch inside the right anterior iliac spine.

Its lower margin reached 3 inches below the level of the umbilicus, and on the left side one finger could be inserted between its margin and the left anterior iliac spine. The surface was uniformly smooth. No notch could be felt in its margin. No murmur or friction was heard over its surface.

No enlargement of the liver could be detected (see Fig. 23).

There was a systolic murmur audible at the apex of the heart.

There were no abnormal physical signs in the lungs.

Fig. 23.

Diagram showing size of spleen before commencement of treatment.

Notes.—During the first three days observations were made of the condition of the blood. (Dr. Gower's hæmocytometer, made by Messrs. Hawksley, was the instrument used.)

August 11.—The red corpuscles were 70 per cent., and the white were very numerous, 1 to 14 red.

August 12.—Treatment was commenced, and throughout its course the same preparation of arsenic was used (Liquor Arsenicalis). The dose first prescribed was ♏vj three times daily after food; it was rapidly increased until August 20, when he was taking ♏xlviij minims daily, and began to show signs of intolerance, so that the dose had to be diminished. In a few days this passed off, and the medicine was again increased.

Date.	Percentage of Red Corpuscles.	Relation of White to Red Corpuscles.	Percentage of Hæmoglobin.	Dose of Arsenic.	Size of Spleen (see Diagram).
August 11th	70	1 to 14	—	Aug. 12.—Liq. Arsenicalis, 18 m daily.	One inch inside right anterior iliac spine.
,, 20th	80	1 ,, 22	—	48 m daily.	
,, 28th	78	1 ,, 47	—	40 m daily.	
September 3rd	70	1 ,, 84	60	48 m daily.	
,, 12th	67	1 ,, 55	—	48 m daily.	Sept. 14th.—Spleen distinctly smaller.
,, 19th	74	1 ,, 123	60	72 m daily { Liq. Arsenic., m xij, Tinct. Opii, m iij, 4-hourly.	
,, 28th	73	1 ,, 155	—	72 m daily.	Sept. 28th.—Spleen one inch to right of middle line, and one inch below umbilicus.
October 5th	66	1 ,, 110	60	48 m daily.	Oct. 10th.—Slight increase of spleen.
,, 12th	66	1 ,, 159	60	90 m daily.	Oct. 16th.—Spleen just to right of middle line.
,, 21st	56	1 ,, 142	54	102 m daily.	
,, 26th	60	1 ,, 152	54	100 m daily.	
,, 31st	62	1 ,, 300	—	100 m daily.	
November 14th	84	1 ,, 256	—	100 m. The full dose was not being taken.	Spleen half an inch above umbilicus.
,, 28th	88	1 ,, 400	—		

By September 14 he was taking a drachm of the Liquor Arsenicalis daily, and distinct diminution in the size of the spleen could be made out. The examination of the blood showed that the red corpuscles had fallen to 67 per cent., and the relation of white to red was 1 to 55. He again began to be troubled with toxic symptoms, with pain in the abdomen and diarrhœa. Tinct. Opii ♏iij was given with each dose of medicine with relief.

By September 28 he was taking 72 minims daily, and the spleen was found to extend 1 inch to the right of the middle line and 1 inch below the umbilicus. The red corpuscles were 73 per cent., and the white to the red 1 to 155.

From September 28 to October 5 he was again troubled with vomiting and diarrhœa, and the dose had again to be decreased. It was noted on October 5 that the white corpuscles had risen to 1 to 110 red, and on October 10 (five days later) the spleen had increased slightly. This increase in the number of white corpuscles and in the size of the spleen followed the diminution of the dose of arsenic.

On October 12 the drug had again been increased to 90 minims daily, and by October 16 to 102 minims, and the spleen had again decreased; it now extended just to the right of the middle line and about 1 inch below the umbilicus.

On November 4 he was discharged from the hospital and sent to a convalescent home. He was directed to continue his medicine in the same dose, 100 minims daily. A few days before he was discharged he became very slightly jaundiced, but this had almost disappeared when he left the hospital.

On November 14 he was looking much better, but had been unable to take the full dose of medicine. On examination it was found that the spleen was smaller than at the time he was discharged, the lower edge reaching downwards to half an inch above the umbilicus. The examination of the blood showed that the red corpuscles had risen to 84 per cent., and the white to the red were 1 to 256.

On November 28 he was again examined; the spleen remained about the same as on the last occasion. The red corpuscles were 88 per cent., and the white to the red had fallen to their normal proportion, about 1 to 400. His health was also much improved, and he was well enough to do some light work.

During the time the patient was under observation the urine was examined at intervals; it was of normal colour,

acid reaction, and frequently contained a deposit of uric acid. There was at times slight elevation of temperature. The maximum temperature reached was 101.2°.

Remarks.—Judging from this case, arsenic appears to be quite as efficacous in leucocythæmia as in lymphadenoma and in pernicious anæmia, and the benefit derived seems to be

Fig. 24.

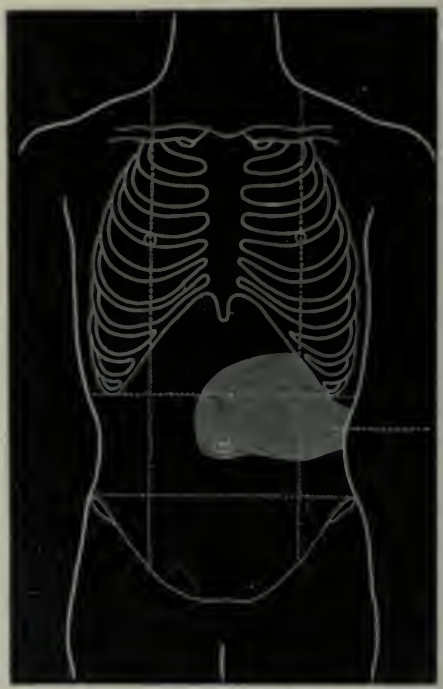
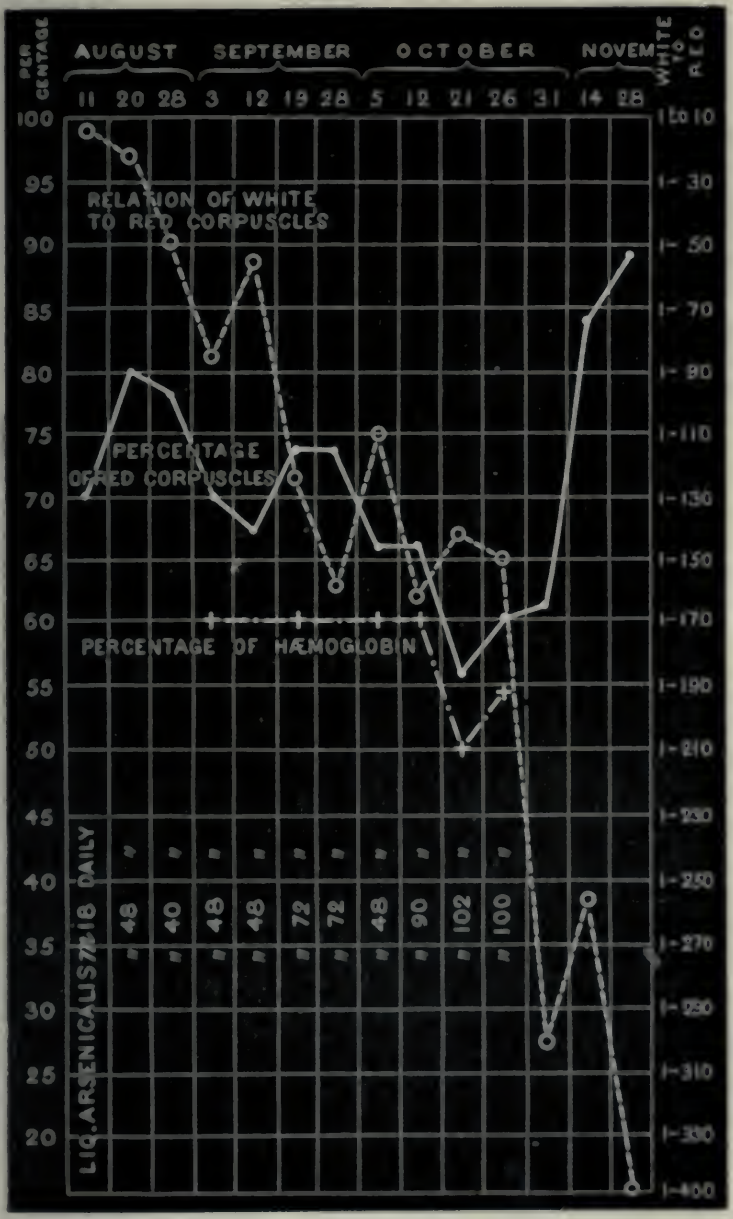


Diagram showing alteration in the size of the spleen which occurred during treatment.

dependent on the drug being administered in sufficiently large doses.

The point which is most striking in this case is the direct relation between the variations in the size of the spleen and the number of white corpuscles present in the blood. While under treatment the white corpuscles gradually decreased in number until they reached the normal proportion, and at the same time the spleen steadily diminished in size.

Fig. 25.


PER CENTAGE
AUGUST
SEPTEMBER
OCTOBER
NOVEM
WHITE TO RED
11 20 28 3 12 19 28 5 12 21 26 31 14 28
100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20
1 to 10
1-30
1-50
1-70
1-90
1-110
1-130
1-150
1-170
1-190
1-210
1-230
1-250
1-270
1-290
1-310
1-330
1-400
RELATION OF WHITE TO RED CORPUSCLES
PERCENTAGE OF RED CORPUSCLES
PERCENTAGE OF HÆMOGLOBIN
LIQ. ARSENICALIS 7/18 DAILY
" 48
" 40
" 48
" 48
" 72
" 72
" 48
" 90
" 102
" 100

It also seemed that both the white corpuscles and the size of the spleen varied inversely with the dose of arsenic administered, as when the dose was decreased or was not retained, there followed in a few days an increase both in the white corpuscles and in the size of the spleen.

The diagrams give a fairly accurate idea of the alteration in spleen.

The chart shows the variations of the red and white corpuscles and of the hæmoglobin. It is to be noted that the red corpuscles and hæmoglobin are measured by the percentage, while white corpuscles are measured by their numerical relation to the red, and so are not figured to the same scale.

The deficiency in the percentage of red corpuscles and of hæmoglobin shows that there was a moderate degree of anæmia.

LIVING SPECIMENS

DESCRIBED BY CARD.

*** Published in accordance with the Regulation relating to the exhibition of living specimens at the meetings of the Society, viz. that "each case shall be accompanied by a card containing a brief description of the points it illustrates, such card to be retained by the Secretary for publication or not in the *Transactions* at the discretion of the Council."

I.—*A case of Spontaneous Displacement forwards of both wrists.* By WILLIAM H. BENNETT. *Exhibited October* 23, 1891.

THE patient, A. M., is an agricultural labourer, aged 40, who was admitted into St. George's Hospital under my care on September 28, 1891.

History.—He enjoyed perfectly good health until about ten years ago, never having been at any time laid up for a single day, and having had no sign of rheumatism or other ache or pain.

About the time mentioned, whilst pulling at a rope which was frozen to the ground, he felt a "snap" in both wrists, accompanied for the moment by a little pain which rapidly subsided. He went on with his work as usual, and thought nothing more of the matter till two months later, when he noticed that his wrists seemed rather weak, and ached a good deal after a hard day's work. A few weeks after this he noticed a change in shape about the wrists, first on the left side and then on the right, the weakness at the same time becoming more marked.

The change in shape increased rather quickly, and by the end of six months from the time at which the distortion was

first noticed, the condition of the wrists was practically the same as at present. No further change has occurred, so far as he knows at all events, during the past seven or eight years. Two years ago he "sprained" his right knee; some swelling followed and has never disappeared. This joint has been stiff and the whole limb weak ever since.

The patient is a big-boned, unwieldy subject, complaining of no ache or pain in any part excepting the affected knee and wrists. The whole carpus on each side is displaced almost completely forwards, producing a characteristic deformity. On the left side the dislocation is complete from both ulna and radius; but on the right side, whilst it is complete from the ulna, it has not reached quite such an advanced degree from the radius. On both sides the outlines of the articular surfaces of the bony parts can be plainly felt and demonstrated; over the articular surfaces, which are quite free from any evidence of erosion or deformity, rather large flabby bursal tumours have developed.

There is no grating of any kind in these joints, the movements of which are of course greatly limited. The displacement is irreducible.

Although the wrists are themselves weak and stiff, a strong grasp is easily effected by the fingers and palm, so that, in spite of the deformity, heavy weights can be raised, and a hard day of manual labour can still be done, although it is followed by aching pain and considerable increase in size of the bursal swellings over the bone ends.

The affected knee is in the condition of "rheumatoid" arthritis with effusion. During movement, which is much restricted, rough grating can be felt.

In the remaining joints, with the exception of the right shoulder, in which a very slight creaking is perceptible, there is no indication of any arthritic changes.

No symptoms of ataxia are present, and the reflexes generally are normal.

The cause of these peculiar displacements must, I presume, have some connection with the "snap" felt when the patient was attempting to lift the frozen rope. The injury, however, was so slight that no effect was produced until about two months later, when the weakness and change in shape of the parts attracted attention for the first time.

That the patient has a tendency to arthritic changes is clear from the evidence afforded by the affected knee, and the creaking in one shoulder-joint.

Altogether the case is of a very unusual kind, and I have met with only one other instance presenting anything like the same condition, and in that case there was neither traumatism nor any evidence of a tendency to arthritic change to account for the displacement.

The patient, E. P., was an otherwise strong and perfectly healthy young woman, a cook, æt. 24, who was under my care in St. George's Hospital in July, 1882. She stated that her right wrist had gradually been changing shape for about a year; for three months the left wrist had been growing out of shape in a similar way. At the same time gradually increasing weakness developed, and a month before her admission she was compelled to give up her work. She had always been healthy, had never had rheumatism, and knew of no injury. Her reflexes generally were normal.

The right wrist was completely dislocated forwards. The displacement of the carpus from the ulna was complete, and from the radius nearly so. The articular ends of the radius and ulna projected under the skin, but there were no bursal swellings or other irregularities about them.

On the left side the displacement was well marked but was only partial, representing in fact an earlier stage of the complete condition on the right side.

Under the influence of an anæsthetic the deformity on both sides could be rectified by a moderate amount of traction, but immediately recurred spontaneously.

II.—*A Case of Tonic Spasms, with intermittent spasmodic attacks, occurring for a period of six months in a boy: recovery after treatment with physostigmine.* By G. Newton Pitt, M.D. *Exhibited October 23, 1891.*

STEPHEN L., æt. 7, came as an out-patient under me at Guy's Hospital on October 5, 1891, when his peculiar appearance at once attracted attention.

Owing to an abnormal tonic contraction of his facial

muscles his palpebral fissures were much diminished, so that they were reduced to narrow slits, especially upon the right side. The naso-labial folds were much deepened, suggesting a slight "risus sardonicus."

He walked stiffly, with knees and thighs never completely extended, leaning forward slightly, with his neck held rigidly, and his upper extremities flexed, not dissimilar from the gait seen with cervical caries. He was afterwards admitted into the hospital under my care, when the following history was obtained.

Family history.—The father has been intemperate, but appears quite healthy; there is no history of any nervous disorders among his relations. The mother is healthy, and has two other boys aged six and three, and a girl aged four, who are quite well; one infant died at the age of five weeks in convulsions. One of the mother's brothers died at the age of fifteen, after seven days' illness. He had been liable to headaches and occasional attacks of abdominal pain. One Friday, while dressing, he was seized with pain in the right arm, which extended down his side; he was confined to his bed until the following Monday, when he went to work for the day, but became ill again in the evening, and died the same week.

One of her sisters died at the age of seven, after two weeks' illness. She was troubled with numbness, pins and needles in her feet, and attacks of headache. One day she was seized with violent abdominal pain, which is said to have caused a kind of fit. Her teeth became clenched, and remained so until her death, which took place quietly. She did not speak after the commencement of the attack, and only a very small amount of liquid food could be forced between her teeth. It is stated that she had some paralysis on the left side.

It was at first thought that these illnesses might have borne some relation to that from which the patient is suffering. I therefore obtained copies of the death certificates, which were as follows:—Elizabeth P., "gastric fever," and George P., "typhoid fever."

Personal history.—There was no difficulty at the patient's birth, and he cried lustily when born. He had no fits in infancy, and was a quick, active boy until October, 1890, when he had an attack of epidemic parotitis, for which he was treated by Mr. Maude, of Westerham, to whom I am indebted for the following notes:

October 10.—The child has been ill three days. Temp. 103°.

October 11.—Epistaxis. Temp. 103°; pulse 120, irregular. Considerable parotid swelling upon both sides. The child is very ill, and has been delirious for the last two nights. Tongue dry and brown.

October 12.—The parotitis has increased. Temp. 103°. Diarrhœa. The child is very feeble and ill.

On the 16th the temperature was normal and the parotitis decreasing.

Mr. Maude says he never saw a worse case of mumps, but the amount of parotid inflammation was slight. The boy became very anæmic.

December 2.—On November 30 it was noticed that his face was drawn. He has slight left facial paralysis, chiefly of the lower portion. There is no deafness and no otorrhœa. The paralysis was visible for about three weeks; it cleared up entirely, but on April 7 there was another sudden attack.

Mr. Maude, who has known the boy for four years, had noticed nothing more about him than that he was delicate, prone to catarrh, and especially to gastric catarrh.

It is difficult to obtain a very definite account of the onset of his present condition, but his parents noticed in April that the right palpebral fissure was again imperfectly open, while the left was wide open. They soon noticed that his left arm and leg became stiff, and after a few weeks the left side of the face was affected in a similar manner to the right, but more slightly, while the rigidity affected all his limbs somewhat.

Since May they have noticed that at night he is awakened by attacks of rigidity, in which he utters a muffled scream, and frequently bites his tongue. These attacks vary in frequency and severity, and but rarely occur in the daytime unless he is asleep. They have noticed he is often more rigid at night than in the daytime.

During May he was in the Ormond Street Hospital for Sick Children under the care of Dr. Lee. He was seen by Dr. Hadden, but as none of the spasmodic attacks appear to have been noticed the condition was thought to be one of hysteria.

For some time he has been unable to open his mouth more than half an inch on account of the rigidity of his masseter and temporal muscles; he has the greatest difficulty in mastication, and practically cannot bite; he is unable to feed him-

self, and sometimes whilst he is being fed a spasm comes on, so that the spoon is clenched between his teeth. He is unable to cough, but makes rather a sort of sneeze.

Only once has he had incontinence of urine; this occurred during a severe spasm of pain. He has had no convulsive attacks other than those described.

Formerly he was very active and good-tempered, and used to play about with the other children. Since the commencement of his illness he has kept quiet, and moves about only slowly. He falls down readily, and last week cut his head in consequence.

Besides the pain in the abdomen which accompanies the spasmodic attacks, and the raw granulating painful condition of his tongue due to the recurrent injuries produced by the sudden spasms of his jaws, he has a more or less constant epigastric pain, and latterly a pain in his groins.

He is only able to button his clothes with difficulty. The spasmodic nocturnal attacks have occurred more frequently of late, and he has become more irritable.

If he is fatigued or worried his attacks at night are worse, and he appears to have fewer attacks with a milk than with a solid diet.

He has not grown this year. He is free from headache, vomiting, and optic neuritis.

There has been no wound or injury.

The boy was admitted into Guy's Hospital on October 19. He is a sturdy, well-nourished little boy, with his facial muscles habitually semi-contracted, as if about to cry.

The left palpebral fissure is wider than the right, but the amount of facial contraction varies. It is most marked when he is tired or perturbed, and especially at night.

His sterno-mastoids, and to a less degree the trapezii, are almost always rigid and contracted, and in bed he usually lies with his head retracted.

The abdominal wall is rigid and firmly contracted, but there is no retraction of the wall.

When told to open his mouth he does so to about half an inch with difficulty, and has the greatest difficulty in protruding his tongue on account of the rigidity of the lingual muscles.

The extremity of the tongue is occupied by an unhealthy, granulating, ulcerated surface, 1¼ inches by ½ an inch, which is almost nightly injured in his attacks. He is unable to masticate his food, partly on account of the sore condition of

his tongue, but mainly owing to the muscular rigidity. He flattens his food into small, thin laminæ, which he pushes in between his teeth. There is no dysphagia.

In the daytime his arms are but slightly more stiff than normal, but he is slow in his movements. The legs are rather more stiff than the arms, but the amount of stiffness varies. The various forms of sensation are everywhere normal.

Plantar reflexes and knee-jerks normal. On attempting to obtain ankle-clonus the legs become rigidly extended.

The boy is quick-witted and observant. He speaks indistinctly and in a monotone, but the sore condition of his tongue and his closed mouth sufficiently explain this.

He has but few spasmodic attacks in the daytime, but when they occur they commence suddenly without any warning. It is not clear what determines an attack; pain often is sufficient; blowing upon his face has no effect.

At night, while asleep, the attacks occur more frequently. Blowing upon his face will at once bring on an attack. They occur at all hours of the night, and if asleep in the daytime he often has one.

He wakes up suddenly with a more or less general violent muscular spasm; his jaws are clenched and the tongue frequently bitten; the facial muscles contract vigorously; his neck is strongly retracted, the abdomen rigid, the legs usually extended. The arms are the parts least affected; they are generally flexed, but the hands are not clenched. With the onset he generally cries out.

The duration of the attacks varies; many last less than half a minute, but the more severe ones last with occasional remissions for as much as five minutes; these are practically a succession of attacks, and often occur if he bites his tongue. He does not lose consciousness, nor does he become livid nor foam at the mouth. There is never any clonic convulsion. These attacks are momentarily very painful from the muscular cramp, especially of the diaphragm and abdominal muscles, and from the condition of his tongue. There is no abnormal sensitiveness of either the muscles or the nerves to mechanical stimuli. During a spasm the conjunctivæ are not insensitive; with severe spasms the pupils are widely dilated, but in slighter attacks the pupils react to light. His viscera are normal. His bowels are constipated. His mouth was painted with Glyc. Boracis, ℥ss; Cocain Hydrochlor. gr. viij; Aq. Camph., ℥j; and later on a gargle of Condy's

fluid was used, and he took Syr. Chloral., ♏ xx; Ammon. Brom., gr. v; Elix. Sacc., ♏ij; Aq. ad ℥j, three times a day.

The Syr. Chloral. was increased gradually after a few days up to ℥j, and the bromide to gr. xv, three times a day.

When awake the abdomen is rigid, but in sleep it has been noticed to be relaxed. The facial contracture diminished slightly, and he could open his mouth slightly wider after he had been in the hospital a week.

November 4.—At first he was kept in bed, and when allowed for two days to be up the attacks at night were more severe and more frequent. He has since then been kept in bed, but the attacks are still frequent.

Number of attacks of spasm in the preceding twenty-four hours:

	Slight.	Severe.		Slight.	Severe.
October 20	10	—	October 29	14	7
„ 21	5	—	„ 30	4	14
„ 22	2	—	„ 31	8	8
„ 23	10	2	November 1	7	4
„ 24	9	9	„ 2	6	2
„ 25	5	8	„ 3	6	2
„ 26	6	2	„ 4	4	2
„ 27	7	1	„ 5	1	4
„ 28	3	7			

For the first few weeks of his stay in the hospital his condition was so serious that it seemed quite probable he would not recover.

November 5.—The boy has improved in some slight details. He opens his eyes rather better, but on exertion the palpebral slit again becomes very narrow. On the right side it is ·5 cm., but rather more on the left. There is no ptosis, the eyelid moving up and down normally with the eye. The pupils are of normal size; react to light and accommodation; the optic discs and retinæ are normal.

His tongue is healing at the tip; he bites his cheeks less frequently; the left used to suffer the most. He is able to feed himself, but is very slow, taking over an hour for each meal; he masticates soft things slightly.

There is generally some slight spasm of masseters and trapezii, but marked and constant spasm in the intercostal, abdominal (especially the rectus), the sterno-mastoid, and the facial muscles. When he respires the diaphragm descends, but the intercostals do not move.

For some nights past a bandage has been placed vertically round his head and jaw to prevent him from biting his tongue,

and it has been fairly successful; he has also had much fewer attacks.

The nocturnal attacks commence with an expiratory splutter and a suppressed cry, to be instantly followed by spasm of the facial and masticatory muscles with strong retraction of the head. In severe attacks he has his legs rigidly extended; the arms are less often affected, but may be extended. The hands have never been noticed clenched.

He usually kneels up or turns over on his face and knees, and puts his hands to the back of his neck. He often cries as the attacks pass off. He never becomes livid, although his face may be congested.

When lifted and when he is washed it is found that he is usually stiff. When he walks the rigidity of his neck is the most marked feature, but he walks unsteadily with his feet apart.

Epigastric, abdominal, and plantar reflexes brisk.

Sensations to temperature, touch, and pain normal. Muscular sense perfect.

The pulse is 132; it is always quicker after an attack. His bowels are regular and the motions normal.

The boy was shown as a living specimen at a meeting of the Clinical Society on October 23, 1891, and was referred to a committee consisting of Drs. Barlow, Beevor, Hadden, and Pitt, to examine and report upon the case.

The committee met at Guy's Hospital on November 12th. The boy was put under chloroform, and even after the conjunctival reflex had disappeared the anterior abdominal muscles remained more or less rigid, and the rectus at times stood out in raised masses corresponding to the intervals between the tendinous insertions. The facial and masseter spasm relaxed, and the sterno-mastoids also became lax. The rectus abdominis reacted normally to faradism and galvanism, with the exception that the general rigidity and tone of the muscle was much increased, and the contractions produced by the electrical stimulation continued slightly longer than normal. The orbicularis oculi reacted normally to faradism, and no tonic spasm of the muscle was induced. With galvanism CCC produced a double short rapid contraction, and CCC was greater than ACC.

The sterno-mastoids, pectoralis major, and lower facial muscles reacted normally to faradism and galvanism. As the boy was recovering from chloroform he was seized with a spasm of the facial and body muscles which lasted for half a

minute. He as usual cried out with the pain produced by the muscular cramp.

From November 6th to the 16th he took Mist. Rhei co. ℥ss three times daily, and Ol. Ricini ℥ss on November 11, in order to exclude the possibility of his attacks being due to any intestinal worms or to any gastro-intestinal derangement. The effects of the chloral and bromide on the attacks were not very marked, nor has there been any marked change in the last ten days, but the attacks are less frequent and less severe than formerly.

On November 16 he commenced to take Ext. Physostigmatis, gr. $\frac{1}{8}$, as a pill three times a day.

The following is a list of the nocturnal attacks of spasm which the nurses saw, but probably there were other and slighter attacks which failed to attract notice.

	Attacks.	
November 17	4	
„ 19	0	
„ 20	2	
„ 21	0	Extract. Physostigmatis, ¼ gr. t. d. s.
„ 23	1	
„ 26	3	„ „ ¼ gr. t. d. s.
„ 28	Some.	

Although the fits have been much less frequent of late he still walks about slowly, bending forward and holding himself rigidly. He is very apt to stumble and fall. He still keeps his face screwed up, and opens his mouth with difficulty. On most nights the nurse hears him scream, but the spasm has almost always passed off before she reaches him.

December 1.—Ext. Physostigmatis, gr. ½ t. d. s. Last night he had several attacks of spasm; with the severe ones he was found by the nurse on his hands and knees, with rigid abdomen, retracted head, and clenched mouth.

During the latter part of November the nurses have noticed he does not become so markedly rigid when he is being washed as he has done previously. He but rarely bites his tongue, and his facial expression is less abnormal. The sore on the tongue is much smaller, and is healing rapidly.

December 5.—He has had fewer attacks and the rigidity is less, but he complains of great epigastric pain. This morning he vomited several times, and became very pale and collapsed. The physostigma was omitted.

December 11.—The collapse and vomiting passed off on the 5th, and since then there has been a steady improvement daily. He has had no attacks of spasm, the rigidity

of the abdomen is much less, he opens his mouth wider, and his expression is daily improving. He is quicker in his movements and less clumsy.

December 12.—R Ext. Physo. gr. $\frac{1}{8}$, t. d. s.

December 29.—He has now practically recovered; his expression is perfectly normal, he is still slow and uncertain in his movements, but improves daily; the anterior part of his tongue has quite scarred and healed.

January 1.—From December 3rd to 30th he had no attacks of spasm; on the night of the 30th he had two slight ones, and another last night.

January 2.—Slight attack of spasm in which he cried out. The temperature has been normal throughout.

January 10.—Discharged quite well.

February 29.—He came up for inspection to-day. He has been perfectly well and free from any attack for two months.

He came up to see me at the end of March, as the parents thought he was going to be ill again; he had had no attacks of spasm.

May, 1892.—I have waited until the present time to be certain that he has completely recovered, and as the last spasm was on January 2nd, we may consider this to be the case. The point is one of great importance, as it excludes the possibility of the disease being a congenital one, about which I was for long in doubt.*

With regard to treatment:—Rest in bed, careful dieting, gentle purging, chloral, lapse of time, and firm moral treatment produced but little effect on the disease. Still I think the frequency of the attacks was rather less in November than in October.

The effect, however, of increasing doses of extract of physostigma, commencing with one sixth of a grain three times a day on November 16th, and increasing to half a grain three times a day on December 1st, was marked; having taken this dose for four days, he was saturated with the drug, and from that day the change in his appearance was marked.

The main features of the case are an attack of mumps in November, 1890, followed by some facial paralysis.

In April, 1891, there was some tonic over-contraction of the right facial muscles, which was followed by a similar condition of the muscles of the left side of the body, and gradually became general.

A more or less persistent tonic condition of most of the

* July.—The boy remains in perfect health.

voluntary muscles, especially of the rectus abdominis, the sterno-mastoids, the masseters, and the facial muscles, developed and lasted for over six months. There were not infrequently attacks of more severe spasm, chiefly when he was asleep.

In the slight attacks the muscles named were those which were chiefly affected, but in the more severe many other muscles became rigid; the muscles of the extremities, especially of the upper, almost entirely escape.

The boy's movements are slow and clumsy on account of his rigidity, but he is extremely intelligent and very sharp mentally, having a very humorous way of expressing his ideas. He is free from headache, vomiting, and optic neuritis.

It is at once obvious that his symptoms are not typical of any well-known disease, and we have to decide whether they are due to an abnormal variety of a well-recognised disease, or whether the case is one of a type which has not hitherto been described.

The only gross organic lesions which need be considered are tubercular meningitis, hydrocephalus, and cranial tumour, and these may at once be excluded for the following among other reasons:

The boy's general health was good, and he has had no vomiting, headache, or other symptoms of gross organic disease.

The various conditions without gross organic disease, which produce tonic spasms, may be grouped as follows:

1. Reflex disturbances from intestinal worms and other causes.

2. Severe nutritional disturbances of nervous system: (α) *toxic conditions*, such as tetanus, strychnine, &c.; trismus neonatorum; (β) *exhaustion from over-use*, such as writer's cramp; (γ) *tetany*, the cause of which, if not rickets, is unknown.

3. Congenital abnormalities of the nervous system, such as the three groups of cases described by Thomsen, Eulenberg (*Neurologisches Centralblatt*, 1886, p. 265), and Gowers.

4. Hysteria.

The first group may be excluded, because there was no evidence of any source of irritation, the symptoms did not correspond to those which have previously been attributed to such cause, and the recovery was distinctly traceable to the effects of the physostigma.

The second group present features closely allied to the present case.

In function-spasms from over-use the affection is associated with certain overworked muscles; and this boy had not over-used any sets of muscles.

Tetany may be excluded, as the hands and feet, which were least affected in the boy, are the muscles which in that disease are rigid first of all.

The case presents many features of similarity with tetanus.

The spasm was constant in the masseters, rectus abdominis, sterno-mastoids, and trapezius, producing the trismus, stiff neck, and risus sardonicus of that disease.

There were attacks of spasm in which there was opisthotonos, and the tongue was bitten.

A closer examination will, however, show many reasons for doubting whether we should look upon the present as a very chronic form of that disease.

The history of the onset of the attack is that in April he had spasm of the right side of his face, soon the left limbs were affected, and only after some weeks the rest of the body.

So gradual was the onset of the illness that nothing abnormal was noticed while he was in the Great Ormond Street Hospital for Sick Children, and he was sent home within a short time.

The attacks, which gradually became more frequent and more severe, did not entirely cease until the following January.

The attacks were always more severe when he was asleep, and could then be readily induced, *e. g.* by blowing on his face; while in the daytime, although he was rigid for months, he did not have many attacks of spasm.

Such a partial and gradual onset, such a prolonged course lasting over months, and the increased nocturnal irritability are entirely opposed to our experience of tetanus.

Still exceptional cases do occur, in which the duration runs into months rather than weeks, as in a very remarkable case that appeared to be tetanus, which lasted for five months before it proved fatal, in a case under Dr. Goodhart's care last year.

The illness, although it took months to fully develop, may have been associated with the parotitis, and be due to some at present unrecognised form of poison.

The third series of cases may be briefly summed up as follows, so as to indicate the points of similarity and difference from the present case:

α. *Thomsen's disease.*—Transient rigidity of muscles, which comes on when they are first put in action after a period of rest. The muscles of the face are usually free. The disease is confined to certain families, comes on before adult life, and never subsides.

A very typical case was reported by Dr. Hale White in the *Guy's Hospital Reports* for 1889.

β. Eulenberg, under the title *congenital paramyotone*, described a disease which affected 29 out of 121 members of a family during six generations. The children were born with the affection, which consists essentially of transient attacks of tonic spasm of many muscles, which are readily induced, especially by cold. If a member was free from the disease his children also escaped. New-born children showed the disease by long-continued closure of the eyelids when they were washed in cold water.

When a patient laughed the mouth remained open for a minute, and the use of hands and legs was often greatly hindered by attacks of rigidity. It was impossible for them to keep their eyes open in a wet cold wind. The attacks of spasm were followed by paresis and weakness, which lasted for twenty-four hours.

γ. *Gowers'* case of tetanoid chorea, in a boy æt. 10, where there was a family history, a brother having been said to have died from a similar illness, and a sister had since been affected and died showing the same symptoms. These consisted of a continuous tonic spasm, varied by paroxysms of more intense but similar spasms, involving both sides of the face and the tongue so as to press it against the soft palate and impede swallowing and speaking; the arms were extended, pronated, and rotated inwards, while the fingers moved slowly and irregularly like athetosis; the legs were extended at all the joints, the feet over-extended in talipes equino-varus, and at times the legs were slowly flexed and lifted off the bed. Muscles of trunk were not affected. Nothing was found in post-mortem examination.

There is great uncertainty as to the nature of the fatal illnesses of the brother and sister of the patient. They are registered as typhoid and gastric fever respectively, but I thought at one time that their diseases might have some bearing on the present case. Since, however, my patient appears now to have recovered completely, I do not think it at all probable that the disease is a congenital one, and it is quite distinct from the three series of cases to which I have alluded.

DESCRIPTION OF PLATE IV.

To illustrate Dr. Newton Pitt's Case of Tonic Spasms.

Fig. 1.—From a photograph taken in November, 1891, showing the appearance the boy presented throughout his illness.

Fig. 2.—From a photograph taken in January, 1892, after the boy's recovery.

Fig 1

Fig 2

Hysteria is so complex and varied in its appearances, that many are very apt to fall back upon it as an explanation of almost any nervous phenomena if they do not fall into any well-recognised group.

Unless some well-defined symptoms of hysteria are present it is not justifiable to make this diagnosis; and even when some of the phenomena are present, the possibility of some organic disease having induced the hysterical symptoms must not be lost sight of.

The boy presented none of the well-known symptoms of hysteria, and, on the other hand, the persistent trismus, the recurrent injury to his tongue, the facial spasm, and the occurrence of an attack of spasm while he was still unconscious under chloroform, are symptoms never found with hysteria.

When trismus occurs with hysteria it only lasts for a short time and follows on a convulsive attack.

A general review of all the above cases leads me to think that the present case is distinct from all of them, and that it was due to some nutritional and not to a mere functional disturbance of the nervous system. This was distinct from that due to tetanus in the very gradual and partial onset and the long duration of the attack, which was almost eight months. The symptoms present many points of resemblance to those of tetanus, and hence were probably due to some poison which was being constantly manufactured in the system, forming a strong contrast with the short course of symptoms which occurs with strychnine poisoning when only one dose is introduced into the system.

This view would indicate some specific organism as the cause, as we may exclude autoinfection from waste digestive products such as possibly produce tetany.

The photographs taken in November show the habitual attitude and appearance of the boy. The tremulous condition of the boy is shown by the blurred condition of the photographs.

The two photographs taken after the boy's recovery show the great difference in his normal appearance and attitude, which is a steady one.

Report of the sub-committee appointed to consider Dr. Pitt's case of tonic spasms with intermittent spasmodic attacks occurring for a period of six months in a boy. Recovery after treatment with physostigmine.

Having examined the above case, we have come to the conclusion that it cannot be classed under any of the ordinary categories. We agree with the provisional view expressed by the author that the case belongs to the class of nutritional diseases of the nervous system, and that it has many points in common with tetanus, but is probably due to a different poison.

THOMAS BARLOW.
G. NEWTON PITT.
W. B. HADDEN.
May 27, 1892.

III.—*A case of Xanthoma Multiplex.* By JOHN ABERCROMBIE, M.D. *Exhibited November* 27, 1891.

MARY N., æt. 60, a widow, was admitted under my care at the Charing Cross Hospital September 29, 1891. She sought admission for intense itching, which she had noticed for about eight months. About the same time she had noticed that her hands were becoming discoloured in the palms, and showing white streaks, and she had tenderness in the joints of her fingers. She had been jaundiced for several months, and since the summer has perspired very freely, especially about the hands. She has noticed that her stomach is getting bigger in the region of the liver for one month. In early life she was subject to sick headaches, but has never been laid up in bed with any illness. She has always been well cared for, and been moderate in regard to alcoholic drinks, and has lived in the country. She has one son aged thirty-two, healthy. Her parents died at an advanced age; she cannot say the cause. All her brothers and sisters, with the exception of some that died in infancy, are healthy. She has lost flesh during her illness.

The patient is very thin, and her skin and conjunctivæ are much jaundiced. In each eyelid there is a yellowish-

white patch extending from one canthus to the other, and involving the proximal half of each lid. There is no perceptible thickening to the touch. The condition in the two eyes is very similar. On the inner aspect of the cheek, at each angle of the mouth, the mucous membrane presents a yellowish appearance, and here also there is no obvious thickening. The whole of the neck is involved in a similar way. The skin is of a peculiar yellowish colour and much wrinkled, but there is no thickening. The palms are of a dull claret colour, the skin being moist and sodden; but in the flexures and around the margins and at the roots of the fingers the skin is of a yellowish-white colour and dry. Here and there the skin feels infiltrated. On the backs of the hands are some yellowish streaks, apparently following the course of the superficial veins. The two hands are much alike. Over the olecranon processes are small variously shaped yellowish nodules. The bends of the elbows are in precisely the same state as the neck. On the chest in the axillary line, on each side corresponding to the eighth and ninth ribs, there is a group of small, more or less round, yellowish-white spots with no perceptible thickening, and around the umbilicus is a ring of similar spots. On the dorsum of each foot are a few streaks slightly thickened, and apparently following the course of superficial veins.

The chest is natural as regards the heart and lungs. The abdomen is enlarged in the region of the liver; there is no ascites. The liver can be felt to extend four fingers' breadth below the level of the umbilicus in the nipple line; the left lobe is also considerably enlarged; the surface of the liver is smooth; it is not painful or tender; the edge is readily felt; the liver dulness commences above at the fifth rib in the nipple line. The urine is high-coloured, but contains no bile, and is free from albumen and sugar.

The patient suffered greatly from the itching of the skin, especially of the hands. Lotions of carbolic acid and perchloride of mercury, sponging with very hot water, and hypodermic injections of pilocarpine were tried, but without more than the most transient benefit. The enlargement of the liver is presumably due to hypertrophic cirrhosis.

IV.—*Case of Occlusion of Posterior Nares by a septum apparently of congenital origin.* By E. Solly, F.R.C.S. *Exhibited November* 27, 1891.

R. M., æt. 16, was admitted to the Royal Free Hospital, under the care of Mr. James Berry, in February, 1891, for the purpose of undergoing Koch's tuberculine treatment for lupus of the left cheek, from which she had suffered for about eight years. She had been previously treated for this by scraping and various applications with partial success, the greater part of the affected area being cicatricial, but a few active spots remained here and there, particularly around the edge. On admission it was found that she had complete naso-pharyngeal obstruction, being unable to breathe through either nostril. On digital examination the nares were found blocked by a soft structure, the exact nature of which was left to be determined under anæsthesia. It was then found that above the soft palate was a smooth and fairly thick septum stretching across both posterior nares, no evidence of any opening into the nose being found. The pharyngeal mucous membrane was soft and slightly granular, but there were no adenoid growths. The septum was perforated with a long pair of forceps introduced through each nostril, and the opening thus formed was kept patent by the passage of a red rubber catheter tied in for twenty-four hours, and subsequently passed daily by the patient herself for about ten days, after which it remained patent.

On inquiry it was found that the girl had never been able to breathe through the nose for as long as she could remember. After the operation her pleasure in blowing her nose for the first time was amusing to witness, and with the establishment of nasal respiration the sense of smell, practically in abeyance before, rapidly developed. Her voice, however, has never lost its nasal character. No evidence of previous or existing disease was discovered to account for the presence of the septum as the result of cicatricial contraction, and from the history one may presume that the condition was congenital in origin, representing an excess of growth in the formation of the palatine arch in the embryo, the very reverse of what happens in the case of cleft palate.

There was no family history of malformations of any kind.

With regard to the lupus, an apparent arrest of the disease

took place during the course of tuberculine injections, six of which were given at intervals during a period of four months, the dose varying from 2 to 5 milligrammes. Whether the arrest of the disease could be attributed to this or to the effects of previous scraping, or both, is a question not easy to settle.

As far as I can ascertain there is no mention of a similar case of congenital nasal obstruction, and I have therefore thought it worth putting upon record.

Note (May, 1892).—Patient has been readmitted this month to the Royal Free Hospital with a slight return of lupus around the old cicatrised patch. This has been scraped.

V.—*A case of Charcot's Disease (?) of Tarsus.* By C. Mansell Moullin. *Exhibited November* 27, 1891.

E. B., æt. 40, admitted into the London Hospital May 11th, 1891, suffering from an ulcer under ball of little toe. Discharged cured on June 6.

A fortnight after discharge, patient noticed a sudden enlargement of right foot. As this continued, and although it did not pain him much prevented his continuing his work, he was readmitted.

On admission there was general enlargement of the whole of the tarsus with some solid œdema and eczema of the skin. The knee-jerks were exaggerated; the pupils sluggish, but still reacting to light; no distinct staggering or lightning pains, and no crises. The bones of the tarsus were enlarged, the mid-tarsal and ankle-joints much too movable, the arch of the foot sunken, and the whole foot displaced from the leg. There was no heat, pain, or redness.

Patient was placed on iodide of potassium as there was a history of syphilis, but without any improvement. The œdema subsided, but the enlargement, undue mobility, and displacement continued unchanged.

VI.—*A case of Tracheal Tugging in Aneurysm of the Aorta.* By FREDERICK TAYLOR, M.D. *Exhibited January* 22, 1892.

IN the *Lancet* for 1891, vol. i, pp. 535 and 650, Dr. MacDonnell, of the MacGill University, Montreal, wrote an article on the "Diagnostic value of the Physical Sign Tracheal Tugging in Thoracic Aneurysm." Although the use of this physical sign was first described by an English surgeon, Surgeon-Major Oliver, in the *Lancet* for 1878 (vol. ii, p. 406), it seems to have been practically unknown and unrecognised in England. Dr. MacDonnell, however, shows that at Montreal the occurrence of this sign in thoracic aneurysm has been observed by successive physicians since Dr. Oliver's note, and he records a number of cases illustrating its value. The directions for eliciting it given by Surgeon-Major Oliver, which Dr. MacDonnell does not attempt to improve, are as follows:

"Place the patient in the erect position, and direct him to close his mouth and elevate his chin to the fullest extent; then grasp the cricoid cartilage between the finger and thumb, and use gentle upward pressure on it, when, if dilatation or aneurysm exist, the pulsation of the aorta will be distinctly felt transmitted through the trachea to the hand. The act of examination will increase laryngeal distress should this accompany the disease."

Shortly after the publication of Dr. MacDonnell's article a patient came under my care in Guy's Hospital, in whom the diagnosis of aneurysm of the arch of the aorta was made from the presence of symptoms usually considered characteristic, and I at once tried to elicit the new physical sign "tracheal tugging." He responded at once, and as a crucial test I examined four other patients in the ward, one suffering from aneurysm of the first part of the aorta, the others from different disorders. In no case could I get the pulsation described.

William L., æt. 48, was admitted into Guy's Hospital under my care on April 29, 1891, for pain in the chest and back, cough, and husky voice.

He served in the army for twenty-one years, and has since been a railway porter. He has had ague and dysentery in India. He denies syphilis. Five months ago he was taken

ill rather suddenly with pain in the chest and back, loss of voice, and general weakness.

On admission he had a dusky and congested face, constant cough, hoarseness of voice, severe pains down the centre of the spine from the mid-cervical to the lower dorsal spines, and pain in the lower sternal region. The chest is somewhat barrel-shaped, and resonance extends over the præcordial area. Vesicular murmur is deficient at the left base behind. The heart sounds are muffled, but free from murmur. The right pulse is compressible, the left pulse is scarcely perceptible. The laryngoscope shows that the left vocal cord is totally paralysed and in the cadaveric position, whereas the right cord moves freely.

The condition of the left pulse, the left chest, and the left vocal cord pointed to aneurysm; and two of these signs indicated that the aneurysm occupied the concavity of the transverse part of the arch.

On trying for tracheal tugging a very definite result was obtained. There was never any difficulty in getting pulsation communicated to the cricoid cartilage, and hence to the fingers of the observer, whenever, with the head extended and the mouth shut, his cricoid was lifted away from the chest. The observation was made repeatedly during his residence of five months in the hospital, and it can be felt equally well now, nine months after his coming under my notice.

During his stay in the hospital he suffered much from pain in lower part of the chest and upper part of the abdomen, and had frequent cough. In the latter half of May he had pneumonia of the left lower lobe, of which the traces remained for some time. He is in the same condition now as he was on his discharge from the hospital, September 24, 1891.

VII.—*A case of Myxœdema.* By Arthur T. Davies, M.D. *Exhibited February* 26, 1892.

Alice A., æt. 45, born in London, married, has had thirteen children, ten of whom are living. She has always enjoyed good health, except for an attack of typhoid fever followed by pleurisy twenty-five years ago. Her father died fifty-two years of age, cause unknown; her mother at forty-

six years from phthisis; and she has five brothers and two sisters alive and well.

This patient came under my care in November, 1891, when she complained of constant pain across the loins and in the head, together with shortness of breath difficulty, with slowness of speech and articulation, profuse menstrual flow of frequent character and of dirty chocolate colour, and of feeling very chilly. She further states that she began to get stout at thirty-eight years of age, and that her face began to puff up seven years ago, which has so altered her appearance that for the past two years her friends have failed to recognise her. Her voice began to change in character about seven years ago, and for six years she has been unable to use her needle owing to the puffy condition of her hands; for three years she has noticed increasing slowness in thought and action.

Patient has a heavy, stolid appearance; is very bulky; hair black, rather thin on the vertex; eyelids swollen and pearly; nose thickened; forehead lemon tinted, wrinkles partially obliterated; eyebrows arched; cheeks puffy, and present the characteristic high flush; teeth and gums not affected; tongue enlarged; and mucous membrane of interior of cheeks thickened. There is marked fulness above the clavicles; the voice is monotonous and of a low pitch, the vocal cords acting very deliberately and slowly; the hands are puffy and spade-like, and skin is very dry; the thyroid is not definitely felt; solid œdema of legs and feet; patellar reflexes absent; urine, no albumen or sugar; urea = 1 per cent.

VIII.—*A case of Microcephalus.* By Wm. Wallis Ord. *Exhibited February* 26, 1892.

ALICE R., æt. 5½ months. Father and mother healthy; three other children alive and healthy; none have had fits or are idiotic; one child died at seven weeks of "convulsions;" nothing abnormal about its head. No family history of syphilis or tubercle.

A full term child; mother healthy during gestation. No history of fright or injury. Head noticed to be peculiar at birth. Brought to hospital November 5, 1891, for cough; had some bronchial catarrh.

On examination no fontanelle existed; the cranial sutures were united and marked by prominent bony ridges; no paralysis of any kind detected; slight "catching of breath" at times; pupils very small, equal; no history of fits; child took the breast well and had no difficulty in swallowing; was well nourished and presented no visceral lesion.

Measurement from root of nose to external occipital protuberance 8 inches; from one external auditory meatus to the other, 7¼ inches.

IX.—*Frost-bite in a boy, the subject of Hæmatinuria, upon exposure to cold.* By W. G. Spencer. *Exhibited February* 26, 1892.

A BOY, æt. 13, was sent by Dr. Hook, of Brixton, to me at the Westminster Hospital on February 18, suffering from frost-bite of the toes of both feet, and passing dark-coloured urine. The ungual phalanges of all the toes of the left foot, and those of the second and third toes of the right were in a condition of dry gangrene. The frost-bite occurred three weeks before, owing to the patient having slept out for two nights with some other boys in a van standing in a stable yard. He was the only boy affected.

The boy's mother stated that from one year upwards he had always complained much of pain in the loin and between the shoulders whenever the weather became cold, and upon these occasions he was accustomed to pass urine which was frequently as dark as port wine.

The day upon which the patient came to me was cold, there being ice in the parks, and the urine passed in the out-patient room was dark-coloured, gave a blue reaction with guaiacum and ozonic ether, but contained no red blood-corpuscles (specimen shown).

The mother further said that he had never had any other hæmorrhages, nor any evidences of scurvy when a baby; none of his brothers and sisters suffered in this way. *The circulation in the extremities had always been good.* Since admission the weather has become warmer, and the urine normal.

The case therefore suggests that the reason why this boy

was attacked by frost-bite was that the cold at the same time produced in him an excessive destruction of red blood-corpuscles. In other words, the hæmatinuria predisposed to gangrene like acute anæmia from hæmorrhage. Concerning the tendency to the excessive destruction of red blood-corpuscles upon exposure to cold, Dr. Wilhelm Koch * has endeavoured to bring hæmorrhagic diseases into connection with one another by supposing that they are indicative of a permanent injury done to the organism by some affection of a scorbutic character.

X.—*Repaired traumatic separation of Epiphysis of Head of Femur.* By N. Davies-Colley. *Exhibited February* 26, 1892.

Ernest C., æt. 15, while playing at football about the end of November, 1891, fell with another boy on top of him and hurt his left hip. He was able to walk home, and there he remained almost entirely in bed for a fortnight, but occasionally he got up and hobbled about in much pain. At the end of that time he was admitted under my care into Guy's Hospital. There was pain and tenderness about the hip, and some fulness of Scarpa's triangle with slight eversion of the foot. The most remarkable symptom was great prominence of the trochanter major, which was of natural shape and hardly at all tender. This prominence at once suggested dislocation of the hip, but the head of the femur could not be felt in any abnormal position. At first no shortening was detected. There was no active movement of the hip, but passive movement, though painful, was almost complete. The next day, December 10, I examined him under ether. A rubbing sensation, or very slight crepitus could be felt when the thigh was rotated outwards. There was some limitation to the movement of abduction, while adduction and the other movements of the hip were free. I made a careful measurement, and found that the injured limb was a quarter of an inch shorter than the other.

The injury was unlike a fracture of the cervix on account

* "*Blutenkrankheiten*," *Deutsche Chirurgie.*

of the prominence of the great trochanter. Moreover, if, as is usual in so young a patient, the fracture had been extra-capsular, I should have expected to find the great trochanter altered in shape and very tender.

The diagnosis of dislocation was excluded by the fact that the head seemed to be in the acetabulum. I could find no other explanation of the symptoms than that a separation of the epiphysis of the head had occurred, and that the upper surface of the shaft had glided upwards and outwards upon the obliquely placed plane of the epiphysial line, so as to produce a slight shortening, together with the marked projection of the great trochanter. Probably some fibres of the periosteum had remained untorn, so as to prevent the two surfaces from becoming completely free of one another. This would also account for the fact that the boy had been able to walk about a little. The rubbing sensation felt when the limb was moved about under ether was also confirmatory of the diagnosis of separated epiphysis.

The subsequent progress of the patient was satisfactory. He was kept in bed about four weeks with a long outside splint and perineal bandage on, and two weeks afterwards he went out nearly well. The shortening had increased to half an inch. When shown at the meeting he could move his leg about as freely as the other. There was no pain, but the great trochanter was as prominent as ever, and distinctly nearer to the crest of the ilium than upon the uninjured side.

July, 1892.—Since writing the above I have seen a patient under one of my colleagues with a similar deformity, viz. shortening of the limb accompanied by great projection of the great trochanter; and I inferred that separation of the upper epiphysis had occurred. Excision of the head and neck of the femur was performed upon this patient, and it was found that there was a separation of the epiphysis, which had united by bone, after the gliding upwards of the shaft, to which, as I have suggested, the deformity was due in the subject of this communication.

XI.—*A case of Suture of the Musculo-spinal Nerve.* By Stanley Boyd. *Exhibited March* 25, 1892.

PERCIVAL S., æt. 3, admitted to the Charing Cross Hospital December 5, 1889, with a small sinus close to the insertion of the right deltoid, leading to bare bone.

On December 17 the sinus was slit up and a scale of bone three quarters of an inch long removed; on February 13 another sequestrum was pulled out; and on March 1 and 8 exploratory operations were undertaken, but no sequestra found.

On March 13 weakness of muscles supplied by the musculo-spiral was first noticed. Acccording to the notes it increased until on March 28 wrist-drop was marked, but there was no evident wasting, and no loss of sensation.

I now saw the case for the first time, and on March 31 I opened up the sinus, removed several sequestra by splitting open a shell of new bone which surrounded them, found the musculo-spinal nerve divided opposite the sinus, and the ends, of which the lower was the more swollen, embedded in scar tissue. Granulation tissue was carefully removed with a sharp spoon, the wound washed with 1-1000 perchloride lotion, the nerve-ends were freshened and brought together by three catgut stitches, the soft parts were united over the nerve by buried sutures, and the skin-wound closed by a continuous thread of horsehair. Elastic pressure was made by means of a wool dressing, and the arm was fixed to the side.

April 7.—Dressed; all stitches had yielded; wound gaping.

April 17.—Discharged, with a sinus to which a moist boracic dressing was kept applied. It was thought best to make no further attempt at nerve suture until the septic sinus should have healed. After treatment as an out-patient for a month he was readmitted on account of burrowing (May 15).

On July 18 a small sequestrum was felt and removed.

Between this and the summer of 1891 seven pieces of bone, very small, came away.

Last September he came up to the hospital healed and possessing complete power.

XII.—*Three cases of Compound Ganglion treated by complete excision.* By STANLEY BOYD. *Exhibited March* 25, 1892.

CASE 1.—F. M., a girl æt. 24, admitted to Charing Cross Hospital July, 1889.

In April, 1889, patient fell and hurt right wrist, which began to swell a month later; the metacarpo-phalangeal joints became flexed and only slight active motion was possible in them.

July, 1889.—Mr. Bellamy incised the swelling above the wrist on the ulnar side of the median line and expressed a little pulpy material and half a dozen melon-seed bodies; he drained the cavity.

December, 1890.—Patient returned to the hospital with the wrist swelling again and a good deal of pain in the palm. From this time on the movements of the fingers became more and more imperfect till April 14, 1891, when she was re-admitted. It was then noted that there was no history of phthisis. There was a tense swelling both above and below the annular ligament, between which fluctuation was distinct and loose bodies could be felt. The palmar swelling extended into the thumb. The index finger could be moved freely; the three others and the thumb could be slightly flexed at the last inter-phalangeal joint, and the thumb could be imperfectly opposed to the fingers. No other voluntary movements of the fingers were possible, and slight passive movements caused pain.

April 15.—Operation through a median longitudinal incision from 2 inches above the wrist nearly to the heads of the metacarpals. The annular ligament was cut through and the median nerve found anterior to and distinct from the tumour; the morbid tissue was carefully dissected off the tendons of the superficial and deep flexors, the lumbricales, and to some extent from the long flexor of the thumb. No disease of bone was found. Iodoform paste* was well rubbed in, the annular ligament united with catgut, and the skin wound closed with horsehair. The hand was fixed to a Carr's splint by a firm bandage applied over a wool dressing. The tightness of the bandage caused some pain. Active and

* Powdered iodoform made into a paste with 1 in 1000 perchloride of mercury lotion.

passive movements were begun next day and were practically painless.

April 21.—Movement improving; dressed; a little accumulated blood let out. After this movement did not increase, so, on May 1, forcible movement was performed under nitrous oxide; the skin wound gaped, but granulated and healed up steadily. Forcible movement under gas was made several times in this case. She left the hospital on May 15.

March 1, 1892.—Readmitted with fluid in flexor tendon sheath of right middle finger.

On March 2 a ¾-inch incision was made over the metacarpo-phalangeal joint, the sheath scraped out with a spoon and tubercular tissue removed, the interior rubbed with 1-500, iodoform paste applied, and wound sewn up. She left apparently cured on the 9th March.

Case 2.—G. A., secretary and typewriter, æt. 27. No family history or previous history of phthisis.

1888.—Swelling and stiffness of left third finger when learning typing; then no finger could be fully flexed, and difficulty in moving fingers increased to January 3rd, 1890. Improvement on hot bathing, passive and active movement, and counter-irritation, up to June 4, 1890, when fourth and fifth fingers became fixed in semi-flexion and the swelling at wrist became tense, hot, and painful, preventing sleep. Symptoms subsided under rest and moist heat; ʒj—ij of yellow slightly viscid fluid were drawn off, but the tension was diminished, a very elastic swelling remained, large and tense above the wrist, chiefly towards ulnar side; smaller in the palm, with communicated pulsation. There was a good deal of pain running up the arm. No glands affected. Wrist-joint apparently sound.

June 17.—Operation, without division of annular ligament, by incision above and below it; cheesy pus found around ganglion above ligament. In ganglion, clear fluid and thick gelatinous stuff mixed with "melon-seed" bodies. Ganglion tissues dissected off tendons above ligament, scraped off with spoon in palm. Bare bone felt about bases of third and fourth metacarpals. All tendons of flex. sublimis seemed to be involved. The ganglion was distinctly loculated, there being a cavity round each tendon in which the melon-seeds lay.

25.—Discharged, healed, except at one spot which led to the bare bone. A moist boracic dressing was kept on, and iodoform was now and again introduced into the sinus.

After a time recurrences above the wrist became evident, and she was readmitted February 25, 1891, for operation, when it was found that her urine contained ¼ albumen. Except pallor and sickly aspect, there were no other symptoms. The albumen slowly disappeared, and on July 10 she again entered hospital. She then had a fluctuating swelling, chiefly on the ulnar side of the palmaris longus, and 2 inches long; no palmar swelling. Movements of thumb and forefinger perfect; the tip of neither fourth nor fifth finger can be made to touch the palm by ½ inch. The little finger cannot be fully extended—it never could be, the patient said.

July 11.—Operation. Vertical incision from 2½ inches above fold of wrist to midway between it and roots of fingers; anterior annular ligament divided; a large compound ganglion found attached chiefly to tendons of fourth and fifth digits, and dissected off these and other tendons; no disease of carpus found. Ligament sutured with chromic gut, wound rubbed with iodoform paste, skin brought together with horsehair, and wound collodioned. Elastic pressure applied. Little pain followed, and the patient soon began to move her fingers. On one or two occasions a little bloody fluid had to be let out by the passage of sinus forceps between the lips of the wound, and on August 5 a slight recurrence at one spot in the skin wound was scraped out, after which it healed and has since remained sound.

November (end of).—Thumb and ring-finger swelled and became stiff; she was at Oxford during the floods. Got better with hot bathing.

December 23.—Little or no difference between thumbs; nearly ½ inch in circumference of roots of third fingers; fluctuation clear in flexor sheath.

January 6th, 1892.—Some improvement from iodine. This soon came to a standstill.

February 3.—Fluid drawn off, sheath filled with glycerin and iodoform; acute suppuration resulted. An incision was made on 5th; discharge continued for about a month.

Case. 3.—J. N., æt. 52, admitted to Charing Cross Hospital on November 20, 1891. Twelve months ago swelling of the left knee began above and outside the patella, and gradually spread over the synovial membrane without causing any pain; but the joint got weaker and weaker, and two months ago patient had to lie up altogether.

On admission the knee was fixed in a semi-flexed position,

was considerably swollen, and presented the usual signs of advanced tubercular arthritis.

On November 24 an arthrectomy was done by means of a slightly curved incision, 8 inches long and convex to the right, so as to mark out a short wide flap, which was raised to the mid-line; the quadriceps tendon, the patella, and the patellar ligament were then divided vertically in the mid-line; the much-thickened synovial membrane of the supra-patellar pouch was next dissected out on each side of the mid-line, but not without difficulty. By forcibly flexing the knee the crucial ligaments were exposed, cleaned, and were shown to be healthy; but the disease was found to extend along the popliteus tendon. This prolongation was carefully cleaned out after division of the external lateral ligament. The bones were rather curious. On the inner femoral condyle, about the semilunar sulcus, there was a low mound of cartilage, half an inch across, irregular on the surface, into the substance of which ossification had extended. Gouging showed no evidence of tubercular change in the substance of the condyle here. Along the margin of the external condyle, where it bounds the intercondylar notch, the cartilage had been eaten away by a synovial fold. Where the two bones (femur and tibia) had long pressed against each other cartilage had disappeared by simple atrophy, the apparently healthy articular surfaces of the bones being in direct contact. The joint was scrubbed with perchloride lotion, smeared with iodoform paste, and nearly straightened. The patella was united with thin silver wire, the tendons with catgut, and over this line of union the short skin-flap was laid and fixed by a continuous horsehair suture. The limb was placed in a Thomas's splint, and firm pressure applied over a large wool dressing.

December 19.—Dressed; wound healed; splint removed. He soon gained some movement, which was accompanied by loud grating.

On the 26th a back splint was applied to prevent a tendency to persistent flexion, which was becoming apparent.

The patient now got about on the leg, "as well as on the other," he said. The splint was not worn many weeks, and when it was removed movement from almost complete extension to nearly a right angle was gained, and the patient walked with but slight lameness.

Three weeks before admission (*i. e.* in the last days of October, 1891) pain appeared in right wrist; it soon went, and was followed by painless increasing swelling, which on

admission extended from 1¼ inches above to 1½ inches below the annular ligament; largest above and of semi-solid consistence. The muscles of the thenar eminence were greatly atrophied, the hypothenar to a less extent; the base of the latter eminence was considerably swollen (fluid ?). On the back of the wrist there was swelling along the extensor tendons of the thumb. Side-to-side movement was easily obtained in the joint; it caused no pain, but was accompanied by a good deal of soft crepitus and clicking noises. The part was nearly useless.

During the treatment of the knee a few injections of ethereal solution of iodoform were made into the wrist-joint and the compound ganglion; they seemed to cause much pain, which, however, did not last long; one injection into the swelling on the extensors of the thumb caused it to diminish very rapidly and markedly. No real advance being made, on February 6, 1892, a four-inch incision was made on the radial edge of the extensor carpi ulnaris; then the radio-ulnar joint was opened and found to be tubercular, and a nodule of tubercular tissue was discovered projecting between a carpal and metacarpal bone. It thus became clear that all the synovial membranes in this neighbburhood, except that at the base of the thumb, were involved. The only way to get at it was to resect the carpus, and to do this the tendon of the flexor carpi ulnaris was divided between two sutures. Through the gap developed by abduction and flexion of the wrist it was fairly easy to remove the carpal bones one by one until the trapezium was reached. This was left, the joint between it and the thumb being apparently sound. The unciform process and the main mass of the pisiform were left. The bones removed all appeared healthy, as also did those left, so the disease seemed to be of synovial origin. The whole cavity was now most carefully gone over with a sharp spoon, as also was the radio-ulnar joint, the triangular fibro-cartilage of which it was necessary to remove. Finally, after rubbing the whole surface well with dabs in 1-500 perchloride lotion, the wound was temporarily plugged with similar dabs. A five-inch incision along the radial edge of the palmaris longus was carried down into the palm and through the annular tegument. The median nerve was at once seen, and had upon it a fusiform swelling about 1½ inches long, in which all trace of its bundles was lost. There was no connection between the nerve and the morbid tissue surrounding the flexor tendons. No doubt this accounted for the wasting above

noted. The median being held aside, all the flexor tendons were carefully cleaned. The wound now opened freely into the original cavity. It was similarly cleaned with 1-500, and then the whole wound was smeared with iodoform paste. The tourniquet was removed and the wound closed. A wool dressing was applied with a firm bandage, the fingers and thumb being left free. Pain was considerable, apparently from pressure, as it went when the bandage was loosened. Active movements were free, and painless from the first.

On the eighth day both wounds seemed healed, but the dorsal one gaped a little subsequently. A Carr's splint was worn for a month, and then all support was removed.

With regard to the result of the above treatment, it may be said that at least such movement as was present at the time of operation will be preserved; more may be gained. It seems possible to free the patient from the disease with at least as much certainty as arthrectomy offers in cases of joint disease.

XIII.—*Obscure affection of the Soft Palate.* By Felix Semon, M.D. *Exhibited March* 25, 1892.

THE patient is a married woman, æt. 22, who has attended for some time as an out-patient at the Throat Department of St. Thomas's Hospital. She complains of soreness in the throat and swelling of the glands since August last. The affection began with a cold followed by swelling of the gums, and when this subsided the throat became bad and the glands in the neck swelled. At first only irritation in the throat was felt, which gradually got worse. At present the throat is very painful one day, whilst the pain is hardly noticeable another. Swallowing of hard substances hurts. The tongue has never been affected. Previously the patient has often suffered from sore throat, and had had fits until the age of eighteen. The family history is good. The patient herself had pneumonia and pleurisy when twelve years of age, but no other serious illness. She married two years ago; her husband is consumptive and comes from a consumptive family. She has had no children and no mis-

carriage. There is a good deal of dysmenorrhœa, but there is no history and no other evidence of syphilitic disease.

On examination of the throat when the patient first came to the hospital, a slight infiltration of the mucous membrane of the pillars of the fauces and of the tonsils themselves was seen, which appeared in part greyish red, in part more vividly congested. The surface of this was in part granular, in part superficially ulcerated, and the whole looked very much like a case of commencing tuberculosis of the palate. Although the lungs and the larynx were not found to be affected, local treatment by lactic acid was commenced, in the belief that this might possibly be a case of primary tubercular disease of the palate, but no success was obtained. The infiltration on the contrary spread gradually over almost the whole of the soft palate, becoming at the same time more raised and assuming a more angry look. At present it affects almost the whole of the soft palate, ending in front with two serpiginous semicircular lines near the border of the hard palate, the left side being a little more affected than the right. At the same time the ulceration just at the base of the uvula, which also is affected, is at times a little more developed. The infiltrated part strongly contrasts with the neighbouring healthy mucous membrane in appearance.

Sometimes the surface of this infiltrated part appears uniformly red and simply granular, on other occasions irregular greyish lines, looking like epithelial opacities and much resembling the margins of the condylomata of secondary syphilis, are seen on it. The similarity, indeed, at times to secondary syphilis of the palate was so great, that energetic specific treatment had been resorted to, but neither various mercurial preparations nor iodide of potassium had had the slightest influence upon it. The infiltrated part is sometimes very tender to the touch, as are also the considerably enlarged cervical lymphatics underneath the angles of the jaw on both sides.

The case is brought forward for suggestions as to diagnosis and treatment. Purposely no local interference whatever has taken place since the failure of the lactic acid treatment, in order to show the members of the Society the exact condition. The opinion has been expressed that the disease of the palate is analogous to the so-called "geographical tongue;" but apart from the fact that so far as my literary knowledge goes no such affection has ever been observed on the palate, the intensity of the pain, the occur-

rence of actual ulceration, and the swelling of the glands seem to differentiate it even clinically from that affection, though I myself inclined to the belief that the case is of a parasitory nature. After the demonstration scrapings will be made microscopically, and, if possible, also bacteriologically examined. (For comparisons sake a genuine case of tuberculosis of the palate occurring in a woman of about the same age was shown, which had already been considerably benefited by scraping and local applications of lactic acid.)

XIV.—*A case of (?) Congenital Malformation of the Larynx and Trachea, with (?) Diverticulum of the Œsophagus.* By FELIX SEMON, M.D. *Exhibited March* 25, 1892.

M. S., æt. 26, spinster, came to the Throat Department of St. Thomas's Hospital in the beginning of this year complaining of thickness in the throat and occasional regurgitation of undigested food an hour or more after meals. This had been experienced for some time, and she had especially observed that the white of hard-boiled eggs used to come back into her mouth one to one and a half hours after her meals.

The pharynx and œsophagus, so far as visible, are perfectly normal, and a big as well as a small bougie have been easily passed into the stomach without encountering any obstacle. At the same time the external configuration of the neck attracted attention.

On examination it is found that externally the thyroid cartilage is more prominent than, as a rule, it is in women, and that additionally the larynx seems to stand much lower in the neck than under normal circumstances, the distance between the most prominent part of the thyroid and the chin being 2 inches, and the distance between the same part and the suprasternal notch being only 1½ inches. The projection and the displacement are very conspicuous.

On palpating the larynx, it is found that the two halves of the thyroid are not united in front by firm cartilaginous but merely by a thin ligamentous connection, and that the finger-

nail can be easily introduced into the fissure thus resulting. The right half of the thyroid also distinctly overlaps the left one.

On laryngoscopic examination a very striking picture is seen. The right half of the larynx stands somewhat higher than the left, but the most remarkable feature of the laryngeal image is that one can look right down into the right ventricle of Morgagni, and that the right vocal cord is visible along its entire breadth, a condition of things which I have never seen before. The vocal cords move well in respiration, and completely touch one another in phonation.

Immediately below the larynx the trachea appears to be somewhat pushed inward from the right side, and the right lateral wall is distinctly visible for some distance. Where this recedes into the normal position lower down, apparently a similar condition begins on the left side, and at the lowest part of the field of vision, *i.e.* where one would expect to see the bifurcation of the trachea it seems as if the left lateral wall was strongly pushed inward by some extraneous influence. At this point, with good light, a very strong pulsation can be seen, such as would be communicated to the wall of the trachea by a very large vessel immediately adjoining it. On external examination of the neck and chest, however, no explanation whatever can be found for this apparent displacement of the trachea. There is no aneurysm either in the neck or in the chest; no tumour can be made out which might be thought to compress the trachea, and altogether no other abnormalities can be found. "Tracheal tugging" was sought for, but not detected.

I am at a loss to give an explanation of these apparent malformations of the larynx and trachea. I have carefully inquired into the patient's antecedents and family history, but there neither is any history of injury from early youth onwards through which such changes as those present could have been produced, nor any family history of congenital malformations or other deviations from the normal. The œsophageal affection also is to some extent obscure, though the probabilities are, of course, in favour of the existence of a diverticulum.

I am not aware that a similar case had ever been recorded in literature, and I bring the case forward in the hope that some light may be thrown upon it by members of the Society.

XV.—*Thyrotomy for Laryngeal Cancer: cure.* By Felix Semon, M.D. *Exhibited March* 25, 1892.

IN this case I performed on June 2, 1891, thyrotomy for malignant growth of the left ventricular band and ventricle of Morgagni. The patient is a gentleman aged thirty-eight. The growth is a squamous-celled carcinoma.

The patient recovered without any incident whatsoever, and there is so far no trace of recurrence. The main reason why he is shown to the Society is the excellent result so far as phonation is concerned. Although all the soft parts on the left side of the larynx, including the left vocal cord, have been removed, the patient's voice is practically normal, as members of the Society will convince themselves. The situation of the former growth is occupied by a smooth cicatrix, with a prominent ridge corresponding to where the left vocal had been, and the right vocal cord crosses to some extent the middle line and almost touches this ridge. The case will be more fully described on a future occasion.

XVI.—*A case of Transposition of the Thoracic and Abdominal Viscera with Morbus Cœruleus.* By Arthur T. Davies, M.D. *Exhibited March* 25, 1892.

ROBERT M., æt. 10, was admitted as an out-patient into the Royal Hospital for Diseases of the Chest on March 8, 1892, complaining of constant cough, shortness of breath, and hoarseness. His only previous illness was measles.

Present condition.—The boy has a general dusky bluish appearance, with lividity of tip of nose, ears, and lips; the fingers are clubbed somewhat and cold, and also the toes present a similar condition.

The chest shows a distinct flattening over usual area of cardiac dulness on left side; a faint impulse synchronous with the heart's action is felt.

On the *right* side of the sternum is seen a distinct pulsation corresponding to the cardiac impulses. The area of car-

diac dulness is placed entirely on the *right* side of the chest, and extends from the parasternal line to the right nipple line. The upper border of the superficial cardiac dulness extends from the junction of the second *right* costal cartilage with the sternum to the apex beat, which latter is felt on the fifth right intercostal space, just below *right* nipple. A loud systolic murmur is heard over the *right* second intercostal space, where it is most marked, but it can be heard all over the cardiac area, and over the *right* lung behind.

The liver is found to be situated on the *left* side; the superficial dulness begins at the upper border of the *left* sixth rib and extends to costal margin in nipple line. The lower edge can be distinctly felt on deep inspiration.

The tympanitic resonance of the stomach is to be detected below *right* costal margin.

The splenic dulness is found on the *right* side about ninth and tenth ribs.

The urine is normal. The boy is *right*-handed. There is no history of fright before birth.

XVII.—*Two cases of Splenic Leucocythæmia.* By William M. Ord, M.D. *Exhibited March* 25, 1892.

CASE 1.—*Leucocythæmia aggravated by acute nephritis, greatly diminished on cessation of nephritis.* The patient, G. R., an Italian, æt. 36, a seller of ice-creams, was admitted to St. Thomas's Hospital on February 3, 1892. He appears to have lived many years in Paris. No history whatever of his having had any attack of malarial fever can be obtained. He appears to have had rheumatic fever when about sixteen years of age. He first noticed swelling on the left side of the abdomen five or six months ago, and was treated by a doctor in Paris for an enlarged spleen. During the five months he has been getting slowly weaker and losing flesh. On February 4, 1892, he noticed for the first time swelling of his legs, followed by puffiness of the face, and further enlargement of the abdomen. He has had no hæmorrhages of any kind. When admitted to the hospital, he presented a very considerable enlargement of the spleen, extending to the umbilicus and downwards, filling the left hypochondriac,

lumbar, and part of the left iliac region. Its greatest breadth was 7½ inches, its greatest length the same. No notch could be felt. Without going into further details, it may be stated that the tumour had every appearance of being an enlargement of the spleen. The liver was distinctly enlarged, extending at least two inches below the costal margin. There was a considerable amount of ascites, and œdema of the abdominal walls of the lower part of the back, and of the legs. The blood, examined by Dr. Sherrington, showed a considerable decrease of red corpuscles, and a more marked increase of white corpuscles. The red corpuscles formed imperfect rouleaux. The corpuscles were irregular in size and shape. The white corpuscles were also abnormal in form and size, many of them being larger than they should be, having a sharp cell-like outline and coarsely granular contents. The hæmoglobinometer showed a greater deficiency of hæmoglobin than of corpuscles. The blood did not clot with its usual rapidity. The urine was diminished in quantity, of specific gravity of 1010, and contained ⅛ of albumen. Under the microscope it presented free blood, hyaline and granular casts, crystals of uric acid. On examination of the eyes with the ophthalmoscope, both the discs were found to be slightly hazy, and were surrounded by numerous feathery-looking hæmorrhages, larger in the left eye than in the right. It was obvious that the patient was suffering from a recent nephritis in addition to his splenic leucocythæmia. The nephritis was first treated, and its symptoms speedily diminished. A week after his admission Liquor Arsenicalis was prescribed in doses of eight drops three times a day. This was on the 29th of February. To-day, less than a month after the commencement of this treatment, the patient shows extraordinary improvement. The dropsy has nearly disappeared, the urine is abundant and contains very little albumen, the spleen has fallen to less than half of its original size, and the blood presents only a very slight increase of white corpuscles. It appears to me probable that the nephritis had caused a rapid increase in the size of the spleen, and in the amount of leucocythæmia, and that on the subsidence of the renal complication, the splenic condition turns out to be not so serious as at first appeared. The liver also has decreased considerably. Under these circumstances I find it difficult to measure the remedial effect of the arsenic, which he has been taking for nearly a month. It is interesting to note that a fortnight ago he had epistaxis of no considerable amount

for a whole day. This and the retinal hæmorrhage might have been due either to the leucocythæmia or to the renal affection, perhaps to both.

Case 2.—*Leucocythæmia aggravated by acute muco-enteritis much diminished on cessation of muco-enteritis.* V. C., a schoolmaster, æt. 40, was admitted to St. Thomas's Hospital on the 15th of April this year. He had had no serious illness until seven months ago, when his abdomen began to swell. After this he was subject to vomiting for some time. Three weeks before admission he was attacked with pain in the abdomen, gradually increasing in severity. Four days before admission diarrhœa began. He has been subject to epistaxis, and had, about a year ago, prolonged bleeding after the extraction of a tooth. Since then his gums have been very apt to bleed. At the time of admission a firm, solid tumour could be felt emerging from under the left costal margin, stretching obliquely across the abdomen towards the umbilicus, filling the left flank, and extending downwards to a line joining the two anterior superior spines of the ilium. At the level of the umbilicus a distinct notch could be felt. The splenic dulness extended upwards to the seventh rib in the axillary line. The liver was decidedly enlarged. There was no dropsy. As regards the eyes, it must be stated that his sight had been getting dimmer during the preceding three weeks. Both optic discs were red and hazy, the right more than the left. The veins were greatly enlarged and tortuous; a few small hæmorrhages were seen in the neighbourhood of each disc, more numerous on the right side; some whitish streaks were observed in the right retina. The urine was of sp. gr. 1020, was acid, and contained no albumen or sugar. A trace of albumen was subsequently found. The blood, examined by Dr. Sherrington, contained an excess of white corpuscles amounting to 16 to 1 of the normal proportion. They were larger than normal, were most of them perfectly spherical, contained a number of large granules, and for the most part did not exhibit any amœboid movements. The red corpuscles looked soft, tailed easily, and did not form proper rouleaux. The diarrhœa, which was not accompanied by hæmorrhage, was first treated with bismuth and opium. At the end of a fortnight it had ceased, and 5 drops of Liquor Arsenicalis, with 15 gr. of hypophosphite of soda, were prescribed on February 26, to be taken three times a day. Up to the commencement of arsenical treatment the spleen had

increased in size, extending more than two inches to the right of the umbilicus, but between this date and his discharge from the hospital on March 14 it receded very considerably. The patient improved rapidly in health, was free from diarrhœa, and was able to be up and about the ward without discomfort. He was discharged at his own request.

This case was evidently of longer standing than the case previously described.

The temperature was normal throughout, excepting on one day, when it rose to 101·4°. Swollen and readily bleeding gums, epistaxis, and diarrhœa belonged to the class of complications characteristic of the disease. It is interesting, however, to observe that while the diarrhœa lasted the spleen continued to increase in size. In this case, as in that first presented, there existed at the time of admission to hospital an acute inflammatory condition (muco-enteritis) complicating the affection of the spleen, and intensifying the leucocythæmia. On the cessation of the inflammatory process the spleen was seen in its real stage of affection. The observations seem to me of much interest, particularly in relation to the apparent effect of drugs in relieving the disease. It is clear that we may in certain cases recognise aggravating complications of a removable kind, and in treating them may do much for the general relief of the sufferer.

XVIII.—*Neuritis following a fractured arm.* By John R. Lunn. *Exhibited April* 22, 1892.

ELIZA K., æt. 38, was admitted January 14, 1892, into St. Marylebone Infirmary, as she was unable to follow her occupation as a lady's-maid, on account of the pain in the right arm and hand when she attempted to use her arm.

She stated that she fell through a skylight and broke her right arm on June 27, 1891. She went to St. Bartholomew's Hospital and was there seven weeks The fracture was said to have been comminuted and she thinks compound. Ever since the accident she has had pain over the seat of fracture (lower end of right humerus) on movement, and occasional darting pains when the arm is at rest.

On admission there was a great deal of thickening over the lower end of the right humerus. There were two prominences; one on the inner side and one on the outer side, the latter being the more prominent. Pressure over either of these places caused much dull pain. The pain on movement commenced from a point over the outer prominence about three inches above the external condyle, travelling down the outer side of the arm and forearm. The right humerus was one inch shorter than the left, and the extensor muscles of the right hand seemed stronger than the flexors. There was some slight anæsthesia of the index and right ring finger, and the nerve affected apparently was the median on the inner side of arm. The nerve on the outer appeared to be some branches of the musculo-spiral. The grasp of the right hand was weaker than the left. Massage, faradic cement, blisters, &c., were tried without any improvement.

On February 16, 1892, a four-inch incision was made from the external condyle upwards over the tender spot; after retracting the muscles, a spicule of bone was immediately found attached to the lower third of the humerus, some filaments of the musculo-spiral nerve were found crossing over the sharp edge of the spicule of bone. The periosteum having been elevated over the prominent piece of bone this was removed with the bone forceps, and the wound well washed out with carbolic lotion, and dressed antiseptically. The patient made a good recovery.

As the pain and numbness still remained in the fingers corresponding to the distribution of the median nerve, it was decided to explore the prominence on the inner side of the arm.

On March 16, 1892, a four-inch incision was made over the biceps muscle, corresponding to the incision for the ligature of the brachial artery, the vessels were pulled with the median nerve to the inner side, a prominent round piece of bone (callus?) was then found about three inches from the internal condyle on the inner and front side of the lower one third of the humerus; this was gouged away and dressed antiseptically, and the arm fixed in a plaster-of-Paris splint.

Since the operation the grasps of the hands appears about equal. No anæsthesia of the index and ring fingers now exists.

XIX.—*A case of Myxœdema in a male successfully treated by injections of sheep's thyroid juice.* By Arthur T. Davies, M.D. *Exhibited April* 22, 1892.

GEORGE W., æt. 43, I exhibited at this Society in February, 1887, when he presented the typical features of myxœdema. The details of the case are given in full in the Society's volume for 1887, p. 267. The accompanying photograph shows very well what his condition was at that time. In October, 1891, he became more helpless, and was admitted an inmate of the Hackney Union Infirmary at Homerton under the care of Dr. Gordon, where, at my suggestion, for four months he has been treated with subcutaneous injections of thyroid juice twice a week. The improvement is most marked in every respect. The facial aspect has entirely changed, and the œdema which disguised the real features has subsided. This is especially to be noted in the eyelids. The hands are now natural in size, but the gums are still somewhat spongy and teeth loose; the voice is also monotonous.

Dr. Gordon writes me that in his opinion the man has vastly improved whilst under the present treatment. He is a different man, both mentally and physically; and this accords with the patient's own statement, that he feels entirely different to what he was formerly, and that he feels now as lively as a cricket. He has lost 12 lbs. in weight; there has been a slight rise in temperature, which was characteristically subnormal, and also there has been some diuresis.

XX.—*A case of Myxœdema.* By Arthur T. Davies, M.D. *Exhibited April* 22, 1892.

JANE L., æt. 62; born in London; always enjoyed good health; is married; had ten children, all of whom are living except one. Her father died of gout at seventy-one years of age, and her mother of congestion of the liver at seventy-

DESCRIPTION OF PLATE V.

To illustrate Dr. Arthur T. Davies' Case of Myxœdema treated by Injections of Sheep's Thyroid Juice.

FIG. 1 shows condition of patient before commencement of treatment, the disease having begun in 1879. The photograph was taken in 1887, but the aspect was practically the same up to December, 1891.

FIG. 2 shows condition after the treatment of three and a half months by sheep's thyroid juice injections, of which twenty-five were given from December 17, 1891, up to March 30, 1892. Photograph taken in April, 1892.

Fig. 1.

Fig. 2.

four. She first noticed between two and three years ago an alteration in her facial aspect, and especially that the eyelids were swollen. This was followed by an increase in the size of her hands and feet, so that she had to wear larger gloves and boots. She also complained of general weakness, slowness of movements, and impairment of memory. About eighteen months ago her attention was drawn to the dryness of her skin, which she says comes off like dust, states that her voice is slower and more monotonous, and that it is only during the last four months her bodily condition has increased in size. Is more placid than formerly, but at the same time if upset she feels it so much, and that everything is a trouble. Patient presents the most characteristic aspects of hebetude; the hair on vertex is thin, the forehead lemon-tinted, the eyelids swollen with elastic œdema, the cheeks puffy and presenting the delicate porcelain pink flush, sharply defined, the nose is thickened, there is distinct fulness above the clavicles, the thyroid cannot be felt. The heart sounds are distant, the hands expressionless, and skin very dry; feet show œdema similar to hands. Temp. 98·6; urine contains no albumen. There have been no hæmorrhages in this case. There is the usual presence of moles.

XXI.—*Cavernous Angioma of the Larynx.* By Percy Kidd, M.D. *Exhibited May 27th*, 1892.

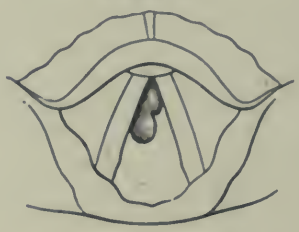
D. S., æt. 40, a Dutchman, came to the out-patient room of the London Hospital in January, 1892, on account of dyspeptic symptoms and a troublesome affection of the voice. During phonation his voice would frequently break into a whisper, and he experienced a slight choking sensation. This symptom had existed for about six months.

Physical examination revealed no disease except in the larynx. A smooth imperfectly bilobed tumour of pink colour, and of the size of a small bean, was seen to be attached to the anterior half of the right vocal cord by a flat ribbon-shaped pedicle. The appearances of the tumour is shown in the accompanying diagram made at the time.

During inspiration and sometimes during phonation the tumour slipped down below the cords into the subglottic space,

but on coughing or loud speaking it was jerked upwards again and impacted between the vocal cords. The movements of the right cord were very slightly impaired. In other respects the larynx was normal. From its smooth surface the tumour was thought to be probably a fibroma. After cocainisation the growth was removed in three pieces with Mackenzie's cutting forceps. Scarcely any hæmorrhage occurred. The ledge of the right cord presented a slightly ragged outline after removal of the tumour, but a few days later the anterior portion assumed a swollen, congested, bulbous appearance. The galvano-cautery was then applied lightly to the swollen

Fig. 26.



portion, and the cord rapidly resumed its normal shape. A slight degree of congestion and thickening of the anterior end of the right vocal cord still persists, but the patient's voice is normal, and all laryngeal symptoms have disappeared. On microscopical examination, the tumour proved to be a cavernous angioma, consisting of vascular spaces of various sizes, with endothelial lining and fibrinous walls, containing blood, and, in places, organising fibrin. The surface of the growth was invested with laminated pavement epithelium. In the *British Medical Journal*, 1888, the writer has recorded a very similar case. In both instances the neoplasm was attached to the vocal cord by a flat band-like stalk. It is worthy of note that in neither case did any marked hæmorrhage follow the removal of the angiomatous tumour.

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